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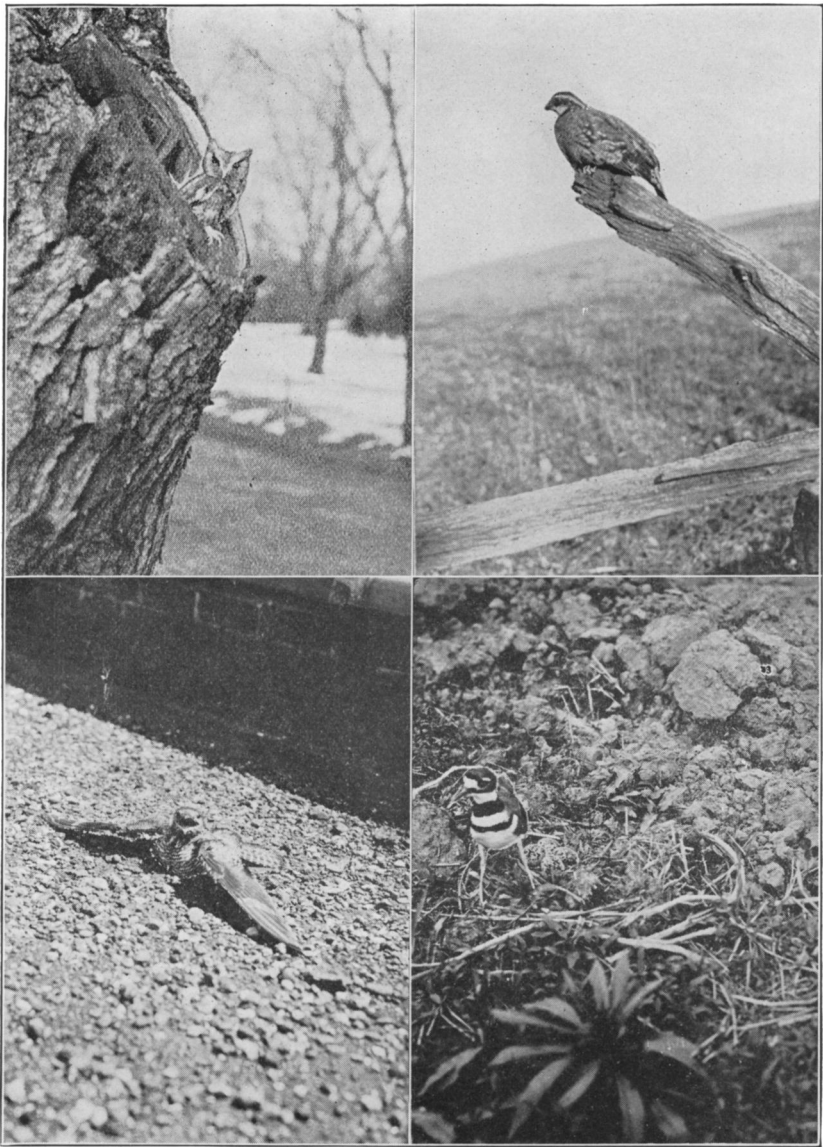
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Four Common Beneficial Farm Birds.

Screech Owl

Quail



Nighthawk

Killdeer

A HISTORY OF THE BIRDS OF ILLINOIS.

BY T. E. MUSSELMAN, A. M.

ILLINOIS AS NEARLY AS WE CAN PICTURE IT IN 1818.

In 1818 at the time Illinois entered the Union as a state, the territory within its boundaries was a wilderness of woods, rivers, swamps, and prairies, penetrated occasionally by winding game trails and cultivated only on a few prominent situations along the rivers where a tiny fort gave protection to a meager village.

Here in the very heart of America, lay Illinois, a veritable bird land, which was due to its ideal geographical location; to the great variety of physiographical conditions; and to the growth of nearly every type of vegetation required by the bird home-seeker.

Each spring tremendous flights of birds swept northward in huge waves, entering Illinois at the junction of the Mississippi and Ohio rivers. As they migrated northward they passed from the cedar grown foothills of the Ozark range into the tremendous lowland forests of hard and soft wood, which then characterized nearly all of southern Illinois. Many clear streams ran slowly through this magnificent growth of great trees and occasionally broadened into pretty lakes whose surfaces were broken by growths of water-lilies, spatter dock and other water vegetation while the borders were lined with cat-tails, arrowhead, willows, and cottonwood. Swamps galore bordered these tiny streams many assuming pretentious size particularly along the Indiana border, in which location were found southern cypress, swamp oaks, gums, sycamore and corresponding trees, many of which grew to unusual size.

High in these trees nested countless hawks of numerous varieties. An occasional eagle upon finding a tree which gave a view over miles of valley, placed her aerie in the topmost

branches. Great-horned owls, Barred owls, Screech owls and Bullbats filled the dark hours of night with weird noises; while the day time was resplendent with the flying of such brilliant birds as the Great Blue Herons, Yellow-crowned Night Herons, American Egrets, Cardinal Redbirds, and Tanagers. Even the harsh cry of the Carolina Paroquet was common.

In the lower situations the Prothonotary Warblers nested by the hundreds in the woodpecker holes which literally rid-dled many of the willows and birches along the swamps. The sedges, iris, and rank vegetation in the water were alive with nesting rails, gallinules, coots, and ducks, while the Hooded, Blue-winged, and Kentucky warblers were not uncommon in the grasses along the moist banks. Farther back in the woods the giant Northern Pileated Woodpecker after mounting some resonant limb would beat a tattoo which in volume and rapidity sounded like a trip hammer; and immediately the hundreds of smaller woodpeckers hearing the challenge would hunt smaller limbs and try unsuccessfully to rival the bold monarch. Skulking in the brush were the majestic wild turkeys while sailing above without any apparent wing motion circled the Turkey Buzzards.

So ideal were the conditions that thousands of birds stopped their travels here, and many a southern bird strayed northward and spent happy weeks in these solitudes. Occasional reports of the appearance of the Roseate Spoonbill and the Anhinga have come down to us and no doubt many other rare southern varieties unknown to us, frequented these woods when conditions were most ideal.

PASSENGER PIGEONS BY THE MILLIONS.

Probably the most unusual of all the sights occurring in these woods were the flights of the Passenger Pigeons going into roost or returning to their nesting sites. Flocks numbering into the millions would approach the roosting site, their wings making a noise resembling thunder. Here they would settle in the trees in such numbers that their weight would often break the limbs. In the morning the flocks would leave for their feeding grounds and so great were the numbers of

the individuals that they literally shut out the light of the sun for hours. The following description by Alexander Wilson, the great ornithologist, was written sometime prior to his death in 1813, and tells of one of these flights down in Kentucky where the conditions were similar to those in Illinois:

“About 1 o'clock the (Passenger) pigeons which I had observed flying northerly the greatest part of the morning began to return in such immense number as I never before had witnessed. At an opening by the side of Benson Creek, I was astonished at their appearance.

“They were flying with great steadiness and rapidity at a height beyond gunshot in several strata deep, and so close together that could shot have reached them one discharge would not have failed of bringing down several birds. From right to left, as far as the eye could reach, the breadth of the vast procession reached, seeming everywhere crowded. Curious to determine how long this appearance would continue, I sat down with my watch in hand at 1:30 P. M. for more than an hour, but instead of diminution of this prodigious procession, it seemed rather to increase, both in numbers and rapidity of flight. Anxious to reach Frankfort before night, I rose and went on. At 4 o'clock that afternoon I crossed the Kentucky River at the town of Frankfort, at which time the living torrent above my head seemed as numerous and as extensive as ever. The great breadth of space which this mighty multitude preserved would seem to intimate a corresponding breadth of their breeding place, which several gentlemen who had lately passed through part of it told me was several miles wide and—they estimated—about forty miles long, in which every tree was absolutely loaded with nests of young birds.”

THE PRAIRIE DISTRICTS YEARS AGO.

No doubt, the many migrants lingered because they hated to desert the attractiveness of the southern woods and swamps, yet the migratory instinct urged the majority of them forward into the prairie districts to the north which welcomed them with tremendous growths of rich grass, in many places higher than a man's head. The occasional streams were lined with

thickets of sumac, button wood and willow, interspersed with clusters of elms, oaks, and maples, which in spots extended into woods, the size of which often threatened the existence of the prairie. This encroachment of the forest was somewhat held in check, however, by prairie fires which annually occurred during the late fall. These occasional wood clusters allowed the forest birds to add their numbers to the large variety of native prairie birds. The following interesting account of a trip to the prairies west of Olney, Richland County on June 8, will give an idea of the number of species and individuals which inhabited the central state even as late as 1871. The writer is none other than the venerable Robert Ridgway and the article appears in the introduction to his, "The Ornithology of Illinois" Part 1, page 14.

"The day was a delightful one; for, although the heat ranged above 80 degrees, the fresh prairie breeze tempered it to a delightful mildness. Resting upon the cool green sward in the shade of a large elm in the hollow, our ears were delighted by such a chorus of bird songs as we have heard nowhere else. Among the leafy arches overhead the Baltimore Orioles whistled their mellow flute-like notes, accompanied by the soft contented warble and joyous carol of the Warbling and Red-eyed Vireos; the birds of the meadow were chanting on every hand their several ditties, while the breeze wafted to us the songs of various woodland species. In the scrubby jungle, a Mocking-bird filled the air with his rich medley of varied notes, the singer leaping in restless ecstasy from branch to branch, with drooping wings and spread tail, or flitting from tree to tree as he sang. A Brown Thrasher poured forth a ceaseless accompaniment as he sat perched sedately upon the summit of a small vine-canopied tree—a contrast in bearing to the restive, sportive *Mimus*, his rival in vigor, and superior in sweetness, of song. Several Yellow-breasted Chats interpolated their loud cat-calls, vehement whistlings, and croaking notes. These three, loudest of the songsters, well nigh drowned the voices of the smaller birds; but in the brief intervals—"between the acts"—were heard the fine and sweet, though plaintive song of the little Field Sparrow, the pleasant notes of the Chewink, the rich whist-

lings of the Cardinal, and the clear, proud call of Bob White. Upon proceeding to the thickets and thus interrupting the louder songsters, the wondrously strong and vehement notes of the Chickty-beaver Bird or White-eyed Vireo greeted us from the tangled copse, and soon a song we had never heard before—the gobbling, sputtering harangue of Bell's Vireo—attracted our attention and, of course, our interest. In the more open woods marking the border of the timber, the several woodland species were noticed; there the vermilion Tanager or Summer Red-bird warbled his Robin-like but fine and well sustaining song, the Blue Jays chuckled and screamed as they prowled among the branches, and gaudy Red-headed Woodpeckers flaunted their tri-colored livery as they sported about the trunks or occasional dead tree tops.

“On the open prairie, comparative quiet reigned. The most numerous bird there was “Dick Cissel” (*Spiza Americana*), who monopolized the Iron-weeds uttering his rude but agreeable ditty with such regularity and persistence that the general stillness seemed scarcely broken; hardly less numerous Henslow's Buntings were likewise perched upon the weed stalks, and their weak but emphatic ‘se-wick’ sounded almost like a faint attempt at imitation of Dick Cissel's song. The grasshopper-like wiry trill of the Yellow-winged Sparrow, the meandering wavering warble of the Prairie Lark (*Otocoris alpestris praticola*)—coming apparently from nowhere, but in reality from a little speck floating far up in the blue sky,—and the sweet ‘Peek-you can't see me’ of the Meadow-lark, completed the list of songs heard on the open prairies. Many kinds of birds besides those already described were seen, but to name them all would require too much space. We should not, however, omit to mention the elegant Swallow-tailed Kites which now and then wheeled into view as they circled over the prairie, or their cousins and companions, the Mississippi Kites, soaring above them through the transparent atmosphere; nor must we forget a pair of croaking Ravens who, after circling above for a short time over the border of the woods, flew away to the heavy timber in the Fox River bottom.”

In all ninety-five species were seen by this eminent ornithologist in the small prairies, while the birds in the neighboring woods brought the total to one hundred and forty species; all probably breeding within a radius of five miles. "As large a number of regular summer residents as any locality of equal extent in North America can boast," said Mr. Ridgway.

As a comparison, I wish to say that, at the present time although but fifty years later, a collector hunting through the same territory during the same month would be fortunate to record fifty to sixty summer residents. The writer while listing birds at the height of the migration season has never been able to record more than 105 species in one day, while the average number during the summer months is more nearly fifty.

WILD FOWL ON THE ILLINOIS RIVER YEARS AGO.

Along the Illinois river and the Mississippi river about the 40th degree were wonderful lakes and sloughs where Rails, Cranes, Gallinules, Coots and Ducks lived and nested in unbelievable numbers. The article herewith printed gives an account of how the ducks came in during the early days before the incursion of drainage districts, pump guns, automobiles, launches, etc. This stirring account of the abundance of the wild fowl in the wild rice fields along the Illinois river more than fifty years ago, is taken from an article written by the graphic pen of Mr. T. S. VanDyke, contributed many years ago to the columns of *Forest and Stream*, from which the different excerpts given below are taken. This is the story, as he tells it—a story of the last days of the muzzle-loading shotgun:

"It was a bright September afternoon, the day after my arrival at Henry, that my friend and I were paddling up the crooked slough that leads from Senachwine to the Illinois river. Wood Ducks, Mallards and Teal rose squealing and quacking from the slough ahead of us, but he paid no attention to them, and I soon ceased dropping the oar and snatching up the gun and getting it cocked and raised just as the ducks were nicely out of range. When we reached Mud Lake—a mere widening and branching of the slough at the foot of Senachwine—we drew the boat ashore. Huge flocks of Mal-

lards rose with reverberating wings from the sloughs all around us and mounted high, with the sun brightly glancing from every plume. Plainly could I see the sheen of their burnished green heads and outstretched necks, the glistening bars upon their wings, the band of white upon their tails, surmounted by dainty curls of shining green.

"There were already in sight what seemed to me enough of ducks to satisfy anyone. Long lines of black dots streamed along the blue sky above Senachwine, up the Illinois and over Swan Lake—between the river and Senachwine—while from down the slough, up the slough, from over the timber on the west, and the timber along the river on the east, came small bunches and single birds by the dozen. Shall I ever forget that big Mallard that bore down upon me before I was fairly hidden in the reeds? He came along with sublime indifference, winnowing the air with lazy stroke, bobbing his long, green head and neck up and down, and suspecting no danger. As he passed me at about twenty-five yards, I saw, along the iron rib of the gun, the sunlight glisten on his burnished head. I was delightfully calm, and rather regretted that letting him down was such a merely formal proceeding. If he were further off, or going faster, it would be so much more satisfactory. Nevertheless, he had to be bagged, whether skill was required or not, so I resigned myself to the necessity and pulled the trigger. The duck rose skyward with thumping wings, leaving me so benumbed with wonder that I never thought of the other barrel.

"But little time was left me for reflection, for a Wood Duck, resplendent with all his gorgeous colors, came swiftly down from the other direction. Every line of his brilliant plumage I could also plainly see along the gun, for I was as cool as before. Yet this gay rover of the air never condescended to fall, sheer, rise, or even quicken his pace, but sailed along at the report of each barrel as unconcerned as a gossamer web on the evening breeze.

"I concluded to retire from the business of single shots and go into the wholesale trade. This conclusion was firmly braced by the arrival of fifteen or twenty Mallards in a well-massed block. They came past me like a charge of cavalry,

sweeping in bright uniform low along the water, with shining necks and heads projecting like couched lances. I could see four or five heads almost in line as I pulled the first trigger, yet only one dropped, and that one with only a broken wing. As they rose with obstreperous beat of wing, I rained the second barrel into the thickest part of the climbing mass, and another one fell with broken wing, while another wobbled and wavered for a hundred yards or more, then rose high and hung in air for a second, then, folding his wings, descended into a heavy mass of reeds away on the other side of the main slough. Meanwhile, my two wounded ducks, both flattened out on the water, were making rapid time for the thick reeds across the little slough, and both disappeared in them just as I got one barrel of my gun capped.

“So it went on for an hour or so. There was scarcely a minute to wait for a shot, yet in that hour I bagged only four or five ducks.

“While gazing a moment into the blank that despondency often brings before me, two Blue-winged Teal shot suddenly across the void. With the instinctive quickness of one trained to brush shooting I tossed the gun forward of the leading Teal about the same space that I had been accustomed to fire ahead of Quail at that apparent distance. The rear duck, fully four feet behind the other, skipped with a splash over the water, dead, while the one I had intended to hit skimmed away unharmed. I had fallen into the common error of tyros at duck shooting, viz., underestimating both the distance and speed of the game.

* * * * *

“The number of ducks increased by the minute. They came with swifter and steadier wing and with more of an air of business than they had shown before. Those hitherto flying were nearly all ducks that had been spending the day in and around Senachwine and its adjacent ponds and sloughs. But now the host that during the day had been feeding in the great corn fields of the prairie began to move in to roost, and the vast army of traveling wild fowl that the late sharp frosts in the North had started on their southern tour began to get under way. Long lines now came streaming down the north-

ern sky, widening out and descending in long inclines or long, sweeping curves. Dense bunches came rising out of the horizon, hanging for a moment on the glowing sky, then massing and bearing directly down upon us. No longer as single spies, but in battalions, they poured over the bluffs on the west, where the land sweeps away into the vast expanse of high prairie, and on wings swifter than the wind itself came riding down the last beams of the sinking sun. Above them the air was dotted with long, wedge-shaped masses or converging strings, more slowly moving than the ducks, from which I could soon hear the deep, mellow honk of the goose and the clamorous cackle of the brant. And through all this were darting here and there and everywhere, ducks, single, in pairs, and small bunches. English snipe were pitching about in their erratic flight; plover drifted by with their tender whistle, little alarmed by the cannonade; Blue herons, Bitterns and Snowy Egrets, with long necks doubled up and legs outstretched behind, flapped solemnly across the stage, while Yellow-legs, Sand Snipe, Mud hens, Divers—I know not what all—chinked in the vacant places.

* * * * *

“The nerves that felt but a slight tremor when the Ruffed Grouse burst roaring from the thicket, now quaked like aspens beneath the storm that swept over me from every point of the compass. There I stood, the converging point of innumerable dark lines, bunches and strings, all rushing toward me, at different rates of speed; indeed, but even the slowest, fearfully fast.

* * * * *

“Hitherto the ducks had all come from the level of the horizon. But now, from on high, with rushing, tearing sound, as if rending in their passage the canopy of Heaven, down they came out of the very face of night. With wings set in rigid curves, dense masses of Blue-bills came winding swiftly down. Mallards, too, no longer with heavy beat, but with stiffened wings that made it hiss beneath them, rode down the darkening air. Sprigtails and other large ducks came sliding down on long inclines with firmly set wings that made all sing beneath them. Blue-winged Teal came swiftly and

straight as the flight of a falling arrow, while Greenwings shot by in volleys or pounced upon the scene with the rush of a hungry hawk. In untold numbers the old Gray geese, too, came trooping in, though few came near enough to give us a fair shot. Nearly all of them steered high along the sky until over Senachwine Lake, or Swan Lake—a little below us to the northwest—then, lengthening out their dark strings, they descended slowly and softly in long spiral curves to the bosom of the lake. Brant, too dotted the western and northern skies, marching along with swifter stroke of wing and more clamorous throats, until over the water's edge, then slowly sailing and lowering for a few hundred feet in solemn silence, suddenly resumed their cackle, and, like a thousand shingles tossed from a balloon, went whirling, pitching, tumbling and gyrating down to the middle of the lake. Far, far above all these, and still bathed in the crimson glow of the fallen sun, long lines of Sandhill Cranes floated like flocks of down in their southward flight, not deigning to alight, but down through a mile of air sending their greeting in long-drawn, penetrating notes.

“Myriads of ducks and geese, traveling from the North, swept by, far overhead, without slackening a wing. Far above us, the Mallard's neck and head, looking fairly black in the falling night, could be seen outstretched for another hundred miles before dark. “Darkly painted on the crimson sky,” the Sprigtails streamed along with forked rudders set for a warmer region than Senachwine. Widgeon sent down a plaintive whistle that plainly said ‘good-bye.’ Bluebills, Wood Ducks, Spoonbills and Teal sped along the upper sky with scarcely a glance at their brethren who chose to descend among them. And far over all, with swifter flight and more rapid stroke of wing than I had deemed possible for birds so large, a flock of Snowy Swans clove the thickening shades, as if intending to sup in Kentucky instead of Illinois.

“Yet, of those that tarried, there were enough for me. With tremulous hand, I poured my last charge into the heated gun, and raised it at a flock of Mallards that were gliding swiftly downward, with every long neck pointed directly at my devoted head. Wheeooo shot a volley of Green-wings between

the Mallards and the gun; kssss came a mob of Blue-wings by my head as I involuntarily shifted the gun toward the Green-wings; wiff, wiff, wiff, came a score of Mallards along the reed tops behind me, as, completely befuddled with the whirl and uproar, I foolishly shifted the gun to the Blue-wings. As I wheeled at these last Mallards, after making a half shift of the gun toward the Blue-wings, they saw me, and turned suddenly upward, belaboring the air with heavy strokes, and just as I turned the gun upon them a mass of Bluebills, with the sound like the tearing of forty yards of strong muslin, came in between, and just behind me I heard the air throb beneath the wings of the Mallards I had first intended to shoot at. The gun wobbled from the second Mallards to the Bluebills, and then to the Mallards behind me—each chance looking more tempting than the last—and finally went off in the vacancy just over my head that the Mallards had filled when I raised it.

“You who think you know all about duck shooting, if you have never been in such a position, have something yet to learn. Excitement and success you may enjoy to the full, but while your ammunition lasts you know nothing of the pleasures of contemplation. Amid the shock, and jar, and smoke, the confusion of even loading the quickest breech-loader, and retrieving the ducks even with the best of dogs, you see nothing compared to what you may see without a gun. As I dropped the worthless gun upon a muskrat house, and sat down upon the top of it, the whole world where I had been living vanished in a twinkling and I found myself in another sphere, filled with circling spirits, all endowed with emotions, hopes and fears, like those that Dante saw in Paradise.

“There, indeed, was the great sea of being, but all one vast whirlpool that engulfed the soul of the poor powderless “tenderfoot,” while his ears were stunned with the whizz and rush of wings all around his head, with the thump and bustle and splash of ducks alighting in the water before him, the squeal of Wood Ducks, the quack of Mallards, the whistle of Widgeon, the scape of traveling snipe, the grating squawk of Herons, Egrets and Bitterns, the honk-honk of Geese, the

clank-a-lank of Brant, and the dolorous grrroooo of the far off Sandhill Crane."

Shifting this picture quickly from the Illinois River westward, we arrive at the Mississippi river which also was a wonderful haven for birds.

THE MISSISSIPPI RIVER LONG AGO.

Lima Lake, located eighteen miles above Quincy, Illinois, was a tremendous swamp situation particularly attractive to the wild fowl and birds. Yearly the White Swans, White Pelicans, and myriads of ducks and geese fed there for days on their migratory trips to and fro. An occasional Swan was reported to have nested there in the early days and one stray oologist collected 250 full sets of eggs of the Prothonotary Warbler among the willows and birch about its borders. King Rails, Wood Cock, and allied birds nested there by the thousands, while hundreds of hollow willow trees sheltered the nests of the now rapidly decreasing Wood Duck together with an occasional nest of the Hooded Merganser.

EAGLES ON THE MISSISSIPPI.

Everywhere in those days birds seemed abundant. Along the Mississippi river proper the Eagles were ever in evidence and took a mighty toll of carrion and material thrown into the waters by the occasional slaughter houses situated along its banks wherever some small town had grown.

One veteran editor recently wrote: "The presence of a pair of Eagles recalls the days of half a century ago when the locality where these birds are now seen was simply alive with Eagles which were attracted by the offal discharged into the river from the pork houses at Keokuk.

"The 'Plough Boy' was operating between Keokuk and Warsaw at that period, and the big birds would come so close to the craft, in gathering the food, that they became a common object of curiosity to passengers who marveled at the strength exhibited in lifting from the water, loads apparently larger than themselves."

VARIED PHYSIOGRAPHICAL FEATURES OF THE NORTH STATE
ATTRACTED BIRDS.

As the birds passed northward beyond the center of the state they encountered rougher country. In many places lime stone cliffs and high clay banks bordered the streams. Happy colonies of Cliff and Barn Swallows built their houses along these rocky fastnesses while the clay banks were honey combed with thousands of holes from which the Bank Swallows flew, twittering in their sweet contentment. Pine trees grew on the crests of many of the cliffs while a heavy natural growth of ferns added variety to the valleys.

As the migrants traveled onward they approached the lake district which was one of the most ideal situation for bird life in the United States. This was due largely to Lake Michigan which was a veritable inland sea, also to the numerous small lakes, the sand dunes, marshes, prairies, and hills, which were graced with an assortment of trees, shrubs, grasses and water growth equal in variety to almost any situation known.

TO OUR NORTH.

Thus Illinois with Lake Michigan on the northeast welcomed millions of ducks, snipe, gulls, terns, and other water birds, to say nothing of many strays from the Atlantic coast such as the Jaegers, Dowitchers, Turnstones, Knots, etc. Directly north of her border lay a network of thousands of lakes, which attracted the Ducks, Grebes, and Loons; while in the winter from the extreme North beyond these bodies of water, same irregular flocks of Bohemian Waxwings, Crossbills, Pine Grosbeaks, and Snowflakes, which found a refuge from the bitter cold of the Arctic regions near that neutralizing agent, Lake Michigan. At irregular periods of twelve or fourteen years a pestilence attacked the Arctic hares causing a terrific decrease in their ranks. Upon such occasions of food shortage, the dreaded Goshawk and the Snowy Owls deserted their northern solitudes and visited the land of plenty, at which time they have been found in abundance over the entire state.

TO OUR WEST.

The trackless prairies to the west sent surprises in the form of Harris Sparrow, McCown's Longspur, Townsend's Solitaire, Swanson's Hawk, etc., to say nothing of many varieties requiring close identification such as the Parkman's House Wren, western Meadow lark and others.

TO OUR SOUTH.

So direct were the river connections with the South that during the mild seasons large number of rare species strayed northward. Particularly did this apply to river and marsh loving birds. These rare visitors included the Roseate Spoon-bill, Anhinga, Carolina Paroquet, Florida Cormorant, etc.

TO OUR EAST.

Finally Illinois was geographically close to the rough and heavily wooded East, a condition which accounted for many of the eastern varieties which were occasionally recorded within her boundaries.

Because of these various conditions, Illinois could expect birds of ocean, lake, river, and swamp, birds of upland and lowland, forest and prairie, including stray visitors from East, North, South, and West, which lingered within these ideal conditions. No matter what Nature required for each species or how fastidious might have been the taste of the individual bird, somewhere in this great land of wonderful streams, lakes and marvelous verdure could be found a site which would arrest the flight of the bird home-seekers or migrants. One hundred years later the land could scarcely be recognized as the same. Certain it is, that the bird migrants of a century before would have looked with bewilderment on the ravages which civilization has made on their Arcadia.

ILLINOIS AS SEEN AT THE TIME OF HER CENTENNIAL.

The Ozark hills still are sparsely dotted with occasional clusters of Juniper. Huge mounds of earth with strange shafts show the entrance to numerous bituminous coal mines.

The forests have disappeared and in their place stand small farms with their orchards bordered with split rail or barbed wire fences. As the birds travel farther north the farms become more elaborate. Neat woven wire fences stretched tightly on metal posts everywhere greet the eye. Scarcely any fence corners are filled with hazel brush and blackberry briars. Everywhere the brush and grass are burned to rid the farmer of the dreaded chinch bug.

Well defined roads lined with poles and wires lead from hamlet to village and then on to the towns and cities which are filled with noise and confusion, strange lights and odors, and soot belching smokestacks.

In despair the birds might turn to the rivers which formerly were bordered with lakes and swamps. But here the transformation is even more astounding. At times rivers which formerly were clear steady streams, now have become surly, muddy floods, speeding on to the Gulf, while at other times they wend their ways slowly through sand bars and mud flats. On the banks, an occasional sentinel still stands to suggest the giants of the former forest primeval, while the islands of silt and the low banks are almost impenetrable with river willows, poplars, and cottonwoods. Where once stood the swamps now are wonderful farms, which are protected from the floods' wrath by huge levees. High power electric wires lead to tremendous pump houses where all drainage and seepage is pumped into the river.

From time to time, tremendous bridges topped with a network of telegraph and telephone wires stand across the path of the bird migrants checking them in the freedom of their flight, dropping those which dare question the right of way bruised and wounded into the boiling, muddy waters below.

The endless prairies no longer welcome the migrant with a wealth of tall grass and wooded morass. Instead the tilled land, rich in its yield of corn, grain and farm products, seems almost endless to all birds seeking cover.

The cliffs which once were so thickly populated with swallows still welcome those visitors which care to accept of their hospitality; however, the cutting of the trees on the

crests above, has often caused erosion to set in, and the soil which originally filled the crevices and encouraged the growth of vines and columbine has now largely washed away on many, while other such situations have changed little in one hundred years. Some hills have been blasted away and the stone has been reduced to lime and cement. The building of roads has often resulted in the cutting away of hills and in these cuts the Bank Swallows always have found an abundance of suitable nesting sites.

Even Lake Michigan to the north is less hospitable now than formerly, with its metropolis and chain of suburban towns. True, many of these maintain bird sanctuaries and protect the birds that loiters in the cemeteries and parks.

All nature seems to have been shorn of its rough spots. Gradually the hills and forests are being cut down and the swamps and lakes are being drained and filled in. Modern farming dooms the natural growth of the land, while the demands of the cities force the farmer to make every acre productive. In one century the land has changed from a territory of woods and prairies boasting a dozen or so mere villages and 55,162 people (census of 1820) to a live, pulsating commonwealth with hundred of cities and towns surrounded by thousands of modern, scientific, farms in which live more than five and a half millions of people.

THE PROBLEM OF THE LAND TRANSFORMATION AND THE BIRD.

And the birds? Well, it is a scientific fact that the distribution of bird life within a certain locality is affected by the character of the vegetation. Naturally with the revolutionary character of the conditions within our state throughout the past century due to land clearance for farming, the bird life accordingly has changed to conform with the surroundings. The result is that the status of the present bird population is practically everywhere dissimilar to that of the bird dwellers of a century ago. A few varieties have been able to change their habits and thus kept pace; they are still here. Some varieties which were then rare have now increased in numbers while many of the then common varieties

have now decreased, most of them having migrated elsewhere or nearly ceased to exist. Unfortunately, we have too many examples of the latter.

WHERE HAVE THE PASSENGER PIGEONS GONE?

And where are the millions of Passenger Pigeons which once graced the southern woods, nesting in such numbers as to burden the trees with their weight? They are gone forever, a sacrifice to man's greed and avarice. They have not migrated elsewhere. They are extinct. The following graphic description by Alexander Wilson will give a slight idea of one of the reasons for their passing.

"As soon as the young were fully grown and before they left the nests, numerous parties of the inhabitants from all parts of the adjacent country came with wagons, oxen, beds, cooking utensils, many of them accompanied by the greater part of their families—and encamped for several days at the immense nursery. The noise was so great as to terrify their horses, and it was difficult for one person to hear another speak without bawling in his ear.

"The ground was strewed with broken limbs of trees, eggs and young squab pigeons which had been precipitated from above, and on which herds of hogs were fattened. Hawks, buzzards and eagles were sailing above in great numbers and seizing the squabs from their nests at pleasure; while from twenty feet upward to the tops of the trees the view through the woods presented a perpetual tumult of crowding and fluttering multitudes of old pigeons, their wings roaring like thunder, mingled with the frequent crash of falling timber. For now the axe-men were at work cutting down those trees which seemed to be most crowded with nests of the young birds, and contriving to fell the trees in such manner that in their descent they might bring down several other trees. The falling of one large tree sometimes produced two hundred squabs, little inferior in size to old birds and almost one mass of fat."

Farther north the birds were netted commercially and John C. French is my authority in quoting the shipment of crates of live pigeons as numbering one hundred and seventy-

five thousand a year from single dealers of whom there were many. So numerous were the pigeons that they could be bought at \$1 a dozen. Bait nets and traps were used. One man secured 300 dozen live birds at one haul from a house over a salt spring. Everywhere the ceaseless slaughter continued until the birds were reduced to a few scattering flocks, the last of which was seen in 1905. They have been entirely wiped out by unrestricted shooting, trapping, etc.

THE SOUTH STATE SITUATION NOW.

With the cutting of the Southern woods and the replacing with little farms and small towns and mining properties, we find the disappearance of the nesting hawks and eagles. No longer do we hear of Wild Turkeys within our borders, while the Carolina Paroquet is a thing of the past. Some Cranes, Egrets and Night Herons are still to be found in the few remaining swamp situations and the Pileated Woodpecker is a rarity whose occurrence marks its appearance as a red letter day on the calendar of the bird lover.

EVOLUTIONARY CHARACTER OF THE SITUATION.

One naturally asks, "With all these varieties of birds gone do we find southern Illinois destitute of bird life?" No indeed; as the forests were cut away and farms and meadows supplanted them, so did the farm and meadow loving birds following the forest and swamp loving birds which had died or migrated elsewhere. Bluebirds, Robins, Grosbeaks, Blackbird, and many varieties of sparrows gradually assumed possession as the situation continually increased to suit their demands. The hawks are in little evidence, except the Sparrow Hawk which cheats some Woodpecker out of his rightful home or builds in the rafters of an old barn or in the steeple of the country church, still causing havoc to the now increasing numbers of grasshoppers and mice.

Many of the birds of the central and northern Illinois situations particularly the prairie and plain birds have increased; while many others will probably never again be seen in these situations. The most notable loss is that of the Miss-

issippi and Swallowtail Kites which are gone from this locality and only an occasional report now comes that a Raven has been seen in the far north land.

The few Eagles that now appear are mercilessly shot at, even though they are our national birds, symbolic of "Liberty." Until recently, the only place where the Eagle has been able to maintain its numbers has been in Alaska. Several years ago, however, the Alaska Government placed a bounty of 50 cents a head on all Eagles killed. From April 30, 1917 until April 10, 1919 about 5600 Eagles had been killed. This probably represents one-half to two-thirds of the Eagle population of Alaska. If we are not heedful, the tragedy of the Passenger Pigeon will be reenacted with the Bald Eagle. Yearly fewer of these beautiful big birds travel South and remain with us as migrants.

Very early in the last century, many scientists and naturalists began to appreciate the economic, as well as the aesthetic value, of our birds. This resulted in a movement to import many varieties of helpful European birds into America. Had the Skylark and other such beautiful songsters accepted our hospitality as readily as did the English House Sparrow and the Starling, we might have called the action successful, but instead, we have to admit that the importation has proved a failure.

THE ENGLISH SPARROW.

In 1851 and 1852 a number of English Sparrows (*Passer domesticus*), were brought from Europe and were liberated at Brooklyn, N. Y. It was not until the early 70's that a few over zealous natives of Illinois bought a number of pairs of these English parasites and liberated them in this state. So prolific are they, and so able to adapt themselves to the conditions of this country that at the present time they are so numerous as to constitute a pest. Without song, being noisy, dirty and quarrelsome, they have developed into one of the worse nuisances ever perpetrated upon the American Public. The Illinois State Legislature recognized this and placed a bounty upon each bird killed, but their increase was not curbed by this action and the bounty was later withdrawn.

Mr. Robt. Ridgway says of it, "It is in every respect a first-class nuisance, to be classed along with the house rat and other noxious vermin."

THE STARLING.

This bird, likewise, has been able to maintain its existence because it can withstand the rigors of the American winters. It looks like a short tailed blackbird, and builds its nest about domestic dwellings. Its habits are reported to be similar to those of the English House Sparrow. However, we shall pray that it will not develop to be such a disagreeable pest. The Starling has just been reported in Illinois (1922) at Champaign-Urbana.

It is to be hoped that in the future, no more birds will be brought to America for propagation purposes, unless the government is sure of their beneficial qualities. Better that we should join our efforts to those of the Audubon Societies and protect the birds which we now have with us, and increase the number of individuals and varieties by the establishment of bird sanctuaries, game preserves, and the proper enactment of game laws, thus allowing them suitable nesting sites and protection while rearing their young.

MIGRATION.

The phenomenon of yearly migration of birds has been one which has caused a great deal of wonderment for many years. In the course of the last fifteen or twenty years a great deal of progress has been made in solving many problems pertaining to this subject. Yet, because of the lack of proper observers in localities over different parts of the state who can give a sufficient amount of time in securing complete records each day, we lack a great deal of co-ordinated data.

Illinois birds might be classified into four principal groups and one secondary class; namely, permanent residents, summer residents, winter residents, regular spring and fall migrants, and a subsidiary class of irregular migrants and strays.

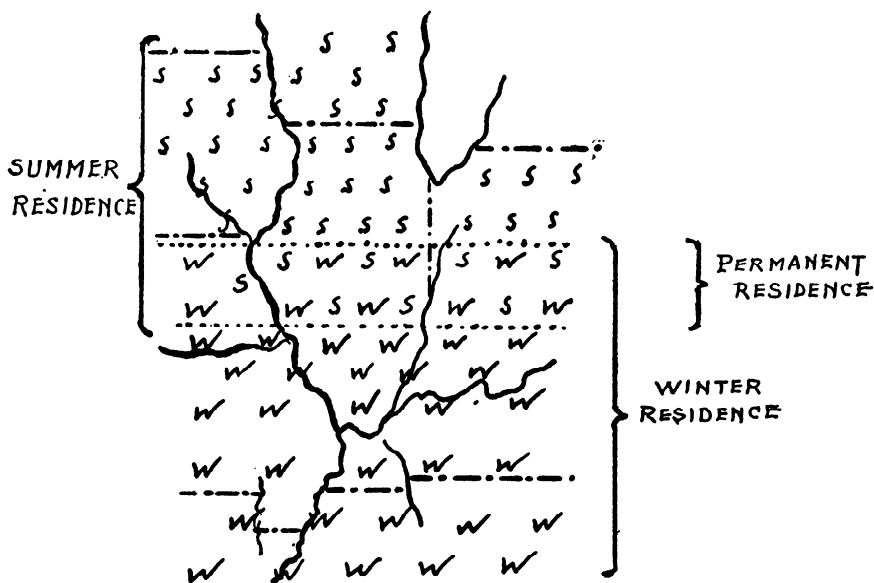
PERMANENT RESIDENTS.

By a permanent resident, we mean a bird which is to be seen in any given locality at all times of the year. The com-

mon permanent residents of Illinois are such birds as the Crow, Blue Jay, English Sparrow, Quail, Cardinal, Red-tailed Hawk, Barred Owl, Screech Owl, Great Horned Owl, Downy Woodpecker, Hairy Woodpecker, Red-bellied Woodpecker, Goldfinch, White-breasted Nuthatch, Tufted Titmouse, Chickadee, etc., any or all of which an interested person may record at any season of the year in almost any part of the state.

The Flicker, Red-headed Woodpecker, Ruffed Grouse, Carolina Wren and others are permanent residents in some sections of the state, and are differently classified in other places. For example, select Quincy, which is one of the most centrally and the most westwardly located city in the state. With us the Song Sparrow is a permanent resident, because one can go out at any season of the year and get records of it; yet, the bird that dodges in and out of the brush piles along the creek during the winter time, is not the same bird which nests with us in June.

The winter bird moves on to the North when the spring migration gives us such an abundance of other Song Sparrows



which in turn pass northward, and Quincy gets as summer residents a few birds which wintered far south of us. Thus at Quincy the bird is always with us.

In northern Illinois, they consider the Song Sparrow as a summer resident, while south of us it is practically a winter resident. The middle part of the state is the place where the winter and summer zones overlap, and consequently we have the birds with us constantly as shown in the accompanying illustration.

By rearranging the lines in the above map, the ratio may be changed so that birds winter entirely south of us and summer entirely north of us. This arrangement would make such birds merely migrants at this point.

Because of this condition a complete list of winter residents in all parts of the state is almost impossible without zoning the seasonal wanderings of each bird.

SUMMER RESIDENTS.

By summer resident we mean a bird which migrates into the state in the spring and spends its summer in this locality, returning south in the fall.

The principal summer residents are:

| | |
|-----------------------|------------------------|
| Robin | Crested Flycatcher |
| Bluebird | Phoebe |
| Wood Thrush | Kingbird |
| Wrens | Hummingbird |
| Brown Thrasher | Migrant Shrike |
| Catbird | Swallows |
| Redstart | Tanagers |
| Yellow-breasted Chat | Dickcissel |
| Northern Yellowthroat | Indigo Bunting |
| Yellow Warbler | Rose-breasted Grosbeak |
| Prothonotary Warbler | Towhee |
| Red-eyed Vireo | Field Sparrow |
| Warbling Vireo | Chipping Sparrow |
| Orioles | Grasshopper Sparrow |
| Meadowlark | Grackles |
| Bobolink | Cowbird |
| Wood Pewee | Redwing Blackbirds |

The principal summer residents are—Concluded.

| | |
|-------------------|------------------|
| Mourning Dove | Swift |
| Killdeer | Whippoorwill |
| Spotted Sandpiper | Nighthawk |
| Yellowlegs | Cuckoos |
| Woodcock | Great Blue Heron |
| Coot | Bittern |
| Rails | Wood Duck |
| Night Herons | |

WINTER RESIDENTS.

The winter residents are those which make their appearance sometime during the fall or early winter and remain in this locality until the warm winds of spring send them northward to their summer home. The common winter residents are:

| | |
|------------------------|-------------------|
| Brown Creeper | Junco |
| Golden-crowned Kinglet | Tree Sparrow |
| Winter Wren | Lapland Longspurs |

While in the northern part of the state, the following are regular winter birds:

| | |
|-------------|--------------------|
| Pine Siskin | Redpoll |
| Snowflake | American Crossbill |

together with many water birds.

REGULAR MIGRANTS.

In addition to these, we have a large number of birds which are mere transients, passing northward in the spring and returning southward in the fall. Many of these birds we see for a day or two while enroute from summer to winter homes or vice versa, and we can scarcely learn to know them because of their short stay. This group includes many of the warblers, fly-catchers, thrushes, ducks, terns, gulls, and other water birds.

IRREGULAR MIGRANTS AND STRAYS.

Finally, we have a large number of migrants which come irregularly and often are not seen again for several years.

This group includes the Goshawk, Snowy Owl, Bohemian Waxwing, Arctic Three-toed Woodpecker, Northern Shrike, Pomarine Jaeger, Evening Grosbeak, etc., most of which are winter residents when they do visit us.

After examining these classifications, one immediately wonders why the birds have such variable migratory habits, thus allowing us to classify them in this way. Many valuable articles have been written for different scientific magazines and a variety of reasons have been assigned as the direct cause of such flight.

Some authors give the desire for food as the main cause of the yearly migration flight. No doubt this does affect a certain class of birds. The gulls from the frozen lake district of the North appear along the Mississippi river during late January and February. They fly along the shores at the point where the ice is breaking and there feed upon the abundance of dead fish which have been starved to death in the shallow water, or which have been caught in the ice and have finally been washed upon the banks. As soon as the food supply begins to wane, the gulls move onward.

Years when we have large supplies of persimmons, barberries, and dried wild grapes, tremendous flocks of Cedar Waxwings may be expected. Even occasional flocks of Bohemian Waxwings make their appearance and remain as long as the food supply is abundant. But even with such apparent illustrations as this, I can not believe that the food supply is the direct cause of migration, for during September and early October with the supply of insects at its greatest, hordes of insect-eating birds leave the Northland and pass on through the state working southward, leaving behind them an abundance of food.

Reverse the situation. During the winter, tremendous flocks of birds have gathered in Mexico, Central America, and South America, in which tropical and semi-tropical countries, insects, berries, and fruits are at all times abundant. If food were the stimulus which excited their migratory flight, all would be permanent residents. None would leave this land of plenty to endure the hardships of a flight across the

Gulf of Mexico, to enter a land just emerging from the desolation of winter's ice and cold; but such is the case.

Other authors give the cause of migrations as an inherited instinct which has been passed on to the birds through thousands of generations, from the time of the glacial period when the birds were forced from their northland homes to the warm countries about the equator by the tremendous force of ice which pushed down from the Northland. A natural desire to get back to the old northern home has been felt in successive generations ever since the Glacial Period, and yearly as spring begins to open up the land to the North, something impels these birds to gather in large numbers for the northward journey. Evidently it is a homing instinct. Recent experiments in banding birds show most certainly that the migrants do manifest a tendency to return to the same general locality whence they were reared, and here they build their nests and raise their young. These are several of the theories governing the yearly cycle of migratory birds which we watch and study and yet do not fully understand.

The following discussion of migration is taken from the 192 Illinois Arbor and Bird Day Bulletin.

"About seven-eighths of our different species are travelers, making annual journeys back and forth between their summer and winter homes. The regions occupied as such homes are now known for very nearly all of the three hundred and more different kinds of Illinois birds, and the principal facts are published so that anyone can look them up. Furthermore, the general routes followed by the birds in traveling back and forth between summer and winter homes are also known for most of the species. An examination of the published data shows that birds of nearly one-half (48%) of the species regularly found in Illinois have their summer and winter homes entirely separated, necessitating a migration by all of the individuals of those species over the intervening territory, annually, in each direction. For some species these may be journeys of but a few hundred miles, while for others they are thousands of miles. Summer residents of Illinois that winter in the states next south of us do not have far to travel, but birds that nest in or near Alaska and the Arctic

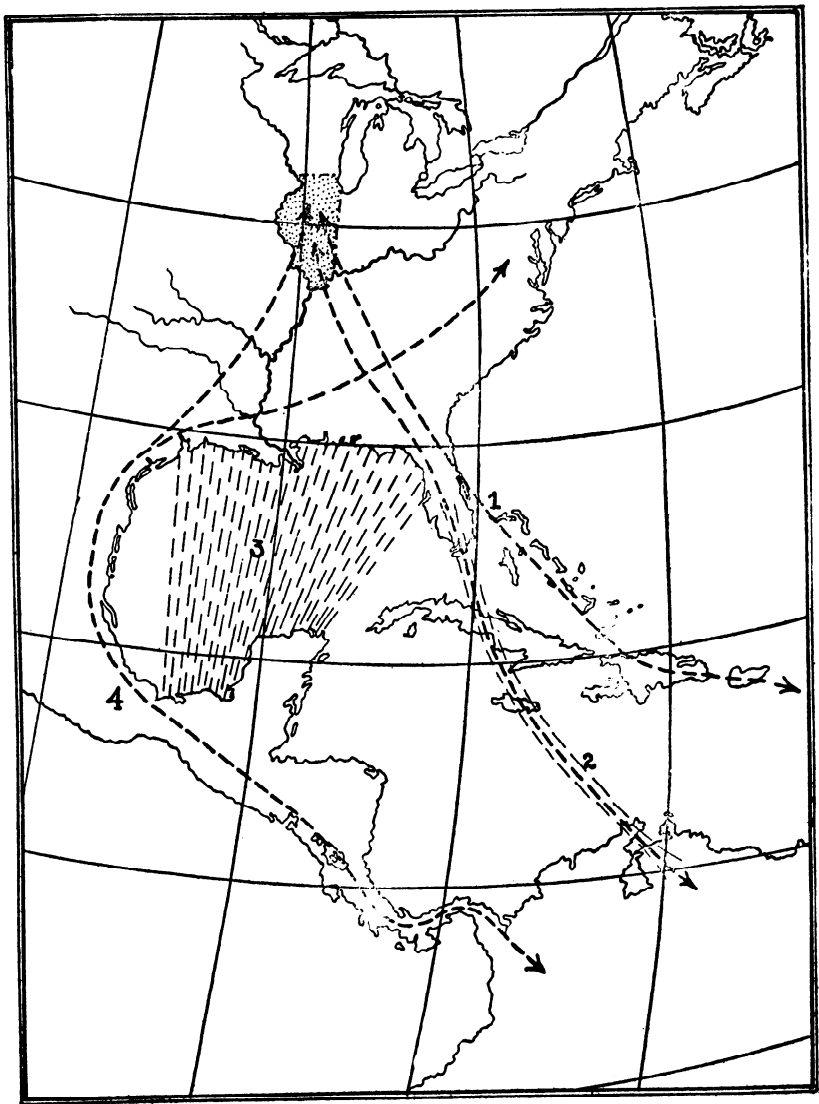
regions, and have their winter home in the southern half of South America, make journeys of 8,000 or 9,000 miles twice each year.

The birds of more than one-third (36%) of our Illinois species journey beyond the boundaries of our country to reach their winter homes. A few kinds, winter in the West Indies, others in Mexico, a greater number in Central America, and representatives of more than one-fifth (21%) of our Illinois species push on into South America for their winter feeding grounds. Among these are included many thrushes, warblers, swallows, tanagers, flycatchers, cuckoos, snipe, and sandpipers.

The accompanying map shows the migration routes followed by most birds that leave the United States for the winter season. It is similar to one in a bulletin of the United States Department of Agriculture (No. 185) on the subject of a bird migration, prepared by W. W. Cooke who, when living, was a leading authority and writer on that subject.

"Most Illinois birds which migrate beyond the boundaries of the United States doubtless follow route 3, which involves a direct flight across the Gulf of Mexico to the southeastern part of Mexico, and then travel overland into Central America, and many of them go still farther into South America. A few, like the Cliff Swallow, fly around the gulf through Mexico (route 4) and a few, like the Bank Swallows and Bobolinks, follow route 2 via Cuba and the Carribean Sea directly to South America.

"It soon becomes apparent to those who make an effort to keep approximately complete records of the birds found in their localities, that these migration flights with the consequent changes in the bird population are going on actively during the greater part of the year. In central Illinois, the arrival of birds from the south usually begins in February and often before the middle of the month. From this time on for nearly four months there is a continually shifting population, and not until sometime in June have the last migrants that hail from South America, taken their departure for more northern regions. In August the return journey is under way and birds on their way to the South American



winter quarters are again with us for a brief time. Not until December have the last autumn migrants left us again for the south. In the spring migration, the greatest number of new arrivals and the longest lists of birds seen on a single trip are usually recorded early in May or, less frequently, in the last week in April." Frank Smith, A. M. in 'Illinois Birds as Travelers.'

COMPARATIVE MIGRATION ALONG THE 40TH DEGREE OF PARALLEL.

An experiment which was maintained for a period of four years by Professor Frank Smith, writer of the preceding excerpt, who is the head of the Ornithology Department at the University of Illinois, Urbana, and the writer who spent one year at White Heath, Piatt County, Illinois, and three years at Quincy, Illinois in securing comparative migration records, produced some very interesting data concerning relative migration of birds along the 40th degree of parallel at the two extremes of the state.

The University records of first arrivals for a number of years show that certain birds make their appearance each year at about the same time. Early in March, there is often a large bird movement which will bring the Phoebe, Killdeer, Fox Sparrows, Meadow Lark, Kingfisher, Song Sparrows, and many others. A little later other groups of birds make their appearance. Thus, from year to year, as one bird of an associated group made its appearance, one can naturally expect other birds which had in former years made their appearance about the same time to appear in conjunction with the new arrival.

The following record gives the appropriate date at which the spring migrants and summer residents have made their appearance in Adams County, Illinois, for a number of years. These dates will, generally speaking, hold good for any city in Illinois along the 40th degree of parallel. Naturally, any town farther south should have a relatively earlier date of arrival, while the towns farther north would have a proportionately later date.

AVERAGE OF SPRING ARRIVALS.

| Date of Arrival. | Variety. |
|---------------------|--------------------------|
| February | { Bluebird |
| 17..... | { Robins |
| 23..... | { Golden-crowned Kinglet |
| 24..... | { Pintail Duck |
| 25..... | { Sparrow Hawk |
| 30..... | Killdeer |
| March | { Mallard Ducks |
| 3..... | { Meadow Lark |
| 6..... | Purple Finch |
| 10..... | Grackle |
| 12..... | { Savannah Sparrow |
| | { Kingfisher |
| 13..... | { Redwinged Blackbird |
| | { Fox Sparrow |
| | { Cowbird |
| 14..... | { Winter Wren |
| | { Green-winged Teal |
| | { Phoebe |
| | { Flicker |
| 15..... | Migrant Shrike |
| 19..... | Spoonbill Duck |
| 20..... | Wood Duck |
| 23..... | { Mourning Dove |
| | { Coot |
| | { White-throated Sparrow |
| 24..... | { Field Sparrow |
| | { Chipping Sparrow |
| | { Gadwall |

AVERAGE OF SPRING ARRIVALS—Continued.

| Date of Arrival. | Variety. |
|---------------------|-----------------------------------|
| March—Concluded. | { Towhee |
| 27..... | { Scaup Duck |
| 28..... | { Purple Martins |
| | { Yellow-bellied Sapsucker |
| 29..... | { Florida Gallinule |
| | { Blue-winged Teal |
| April | { Great Blue Heron |
| 1..... | { Hermit Thrush |
| 2..... | Pied-billed Grebe |
| 3..... | Swamp Sparrow |
| 4..... | { Brown Thrasher |
| | { Myrtle Warbler |
| 5..... | { Jack Snipe |
| | { Spotted Sandpiper |
| 6..... | Semipalmated Sandpiper |
| 10..... | { Tree Swallow |
| | { Vesper Sparrow |
| 11..... | { Bachman's Sparrow |
| | { Grasshopper Sparrow |
| 12..... | Bank Swallow |
| 14..... | Whippoorwill |
| 15..... | Swift (later in the central state |
| 19..... | Little Green Heron |
| 20..... | { Gnatcatcher |
| | { House Wren |
| 21..... | Red-headed Woodpecker |

AVERAGE OF SPRING ARRIVALS—Continued.

| Date of Arrival. | Variety. |
|---------------------|-------------------------------|
| April—Concluded. | { Rose-breasted Grosbeak |
| 22..... | { Pine Warbler |
| | { Palm Warbler |
| 24..... | { Olive-backed Thrush |
| | { Black and White Warbler |
| 26..... | { Wood Thrush |
| | { Scarlet Tanager |
| 28..... | { King Bird |
| | { Warbling Vireo |
| | { Baltimore Orioles |
| 29..... | { Gray-cheeked Thrush |
| | { Northern Yellow Throat |
| | { Wilson Thrush |
| | { Ovenbird |
| 30..... | { Water Thrush |
| | { Yellow Rail |
| | { Red-eyed Vireo |
| May | { Great-crested Flycatcher |
| 1..... | { Magnolia Warbler |
| | { Wilson Warbler |
| | { Redstart |
| | { Dickeissel |
| 2..... | { Black-throated Blue Warbler |
| | { Yellow Warbler |
| | { Least Flycatcher |
| | { Chestnut-sided Warbler |
| | { Blackpoll Warbler |
| 3..... | { Indigo Bunting |
| | { Kentucky Warbler |
| | { Wood Pewee |

AVERAGE OF SPRING ARRIVALS—Concluded.

Date of
Arrival.

Variety.

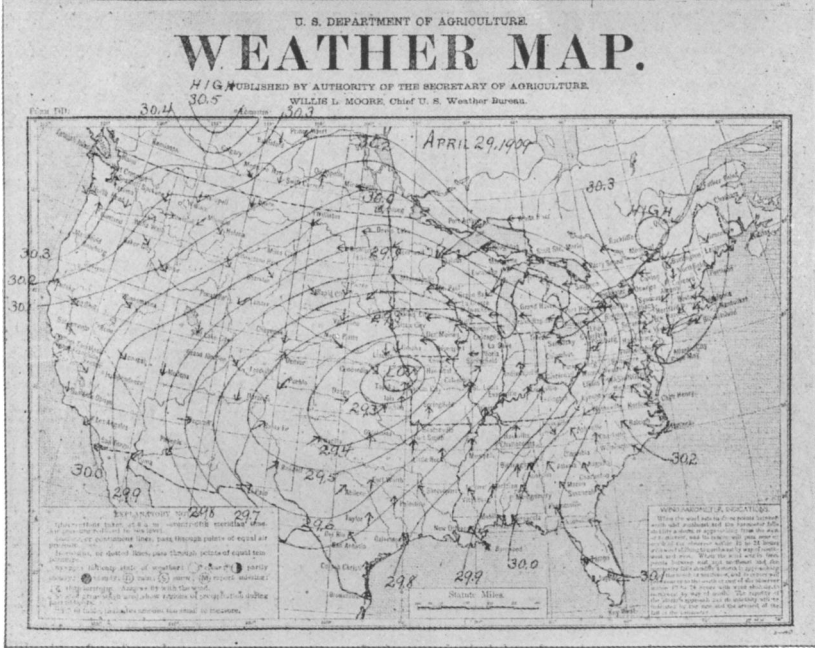
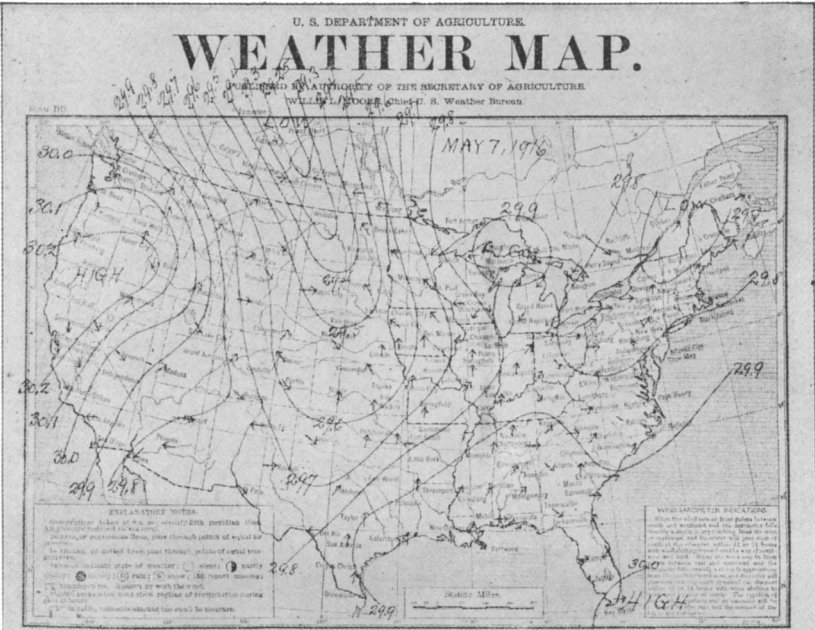
Mty—Concluded.

| | |
|---------|--|
| 4..... | Night Hawk |
| 5..... | { Cape May Warbler Catbird |
| 9..... | Prothonotary Warbler |
| 10..... | Canadian Warbler |
| 11..... | Yellow-billed Cuckoo |
| 12..... | { Yellow-bellied Flycatcher Ruby-throated Hummingbird |

HIGH AND LOW BAROMETRIC PRESSURE THEORY.

Why do many varieties of birds sometimes arrive upon the same night, and is there anything which causes such a general bird wave to occur at some times, while upon other occasions the birds make their appearance in ones and twos? The writer was glad to be able to correlate his records with those of Professor Frank Smith, A. M., who had written many articles on this phase of bird migration, and whom I have to thank for most of the information I have gained concerning the migration of birds. I refer all readers to his articles in the Illinois Audubon Bulletin for the spring and summer of 1918; and to a more comprehensive article in the Illinois Arbor and Bird Day Circular for the spring of 1921, from which the several excerpts herewith printed were taken.

“A study of the daily records made in the months of February to May inclusive, during the years 1903-1918, at Urbana, Illinois, furnish ample evidence that there is a great lack of uniformity in the amount of migration activity on successive nights. On some mornings we have found large numbers of new arrivals belonging to as many as 15 or 20 species not previously seen that season, and such movements are very likely to be preceded and followed by several nights of very little activity. Such extensive movements or bird waves, as they are called, are evidently independent of any



particular food conditions, since they commonly involve birds as unlike in food habits as are the green herons, black and white warblers, and fly-catchers. Extensive bird waves commonly occurred with us, while records were being kept, at the end of February, soon after the middle of March, near the end of April, and early in May. The early May movement was the greatest of all, and at its height, we expected to list 70 to 80 different species a day and see multitudes of individuals. A study of the weather maps of such times of migration activity reveals a close correlation between bird waves and special weather conditions. The greatest flights of night migrants have taken place at times when the weather maps have shown the near approach from the west, of an area of low barometric pressure, with the accompanying rise in temperature, and southerly winds. The two weather maps which are reproduced will serve as illustrations of such maps. On each of the days of the two dates borne by the maps, birds of more than 100 species were seen listed in the vicinity of Urbana. On one of these days, April 29, 1901, birds of 32 species were seen for the first time during the season, and 14 "first records" were listed on the other day, May 7, 1916."—Frank Smith, A. M., in 'Illinois Birds as Travelers.'

When spring comes, the tendency of all the birds seems to be to return to the nesting grounds which have been used for generations by their progenitors. The birds naturally move northward gradually, unless they are checked by steady north winds. Should these winds be local in nature, with south winds farther to the south, it causes birds to move up to the point where the north wind has banked the birds, and the longer the period of stagnation at this point, the greater become the numbers and variety of birds which assemble there. When the areas of barometric pressure rearrange themselves, as shown in the accompanying maps, so that a general south wind results, the birds suddenly are released and move northward in a so-called "bird wave", arriving in tremendous numbers as far as the south wind is effective.

In completing our records for the last three years, I found that as a general thing birds arrived in Quincy and Champaign on the same night. There were exceptions to this,

however. Occasionally a number of the birds would be seen in Quincy one day and similar varieties would be seen in Champaign after the next night. The question naturally arose, why should this be? A careful study of the weather maps again revealed a curious condition. When the birds were banked south of Illinois and an area of "highs" and "lows" had appeared which developed a general south wind which released these birds, the time at which this south wind began to blow had much to do with the time of arrival of the birds. The majority of these smaller birds are weak in flight and for protection's sake they migrate at night. If the south wind approached Quincy about midnight or later, the birds, taking advantage of the wind and darkness, would arrive during the early morning hours and at daybreak cease their migrations. Champaign, being across the state would not be affected by this south wind until sometime later in the day. Naturally the birds, banked south of Champaign, would not move until the next night, when they would move northward on the south wind, and consequently would then appear twenty-four hours later there, than at Quincy.

The above theory applies definitely to the spring migrations. In the fall, the prevailing winds are from the north. By reversing the arrangement of "highs" and "lows", one can tell approximately when the birds will move southward. As a general thing those birds which were the last to come in the spring are the first to pass in the fall and any birds which winter just south of Illinois linger late into the fall in this locality before being driven south by the chilling blasts of winter.

Having seen the effects of migration upon our bird life, it is necessary that we have an authentic list of all the varieties of birds which live permanently, or have migrated to our borders, together with their nesting data. The following list was taken from the Audubon Bulletin published in the spring of 1917 and I have enlarged upon the descriptions and have supplemented it with information from Mr. Frank Smith of Urbana, Mr. Otho Poling of Ocean Beach, California, Mr. Harold Holland of Galesburg, Mr. B. T. Gault and Mr. Ruthven Deane of Chicago, The Spring Migration notes of The Chicago area, compiled by James D. Watson, George P. Lewis,

and Nathan F. Leopold, Jr., together with records taken from several of the leading magazines on ornithology, covering years back.

CHECK LIST OF BIRDS OF ILLINOIS.

Grebes.

Holboell's Grebe.

Rare winter and spring migrant in Illinois, even in the Lake Michigan district.

Horned Grebe.

Nests occasionally in northern Illinois, a rare winter migrant in central Illinois, a common spring migrant along Lake Michigan.

Eared Grebe.

A rare spring and fall migrant along Lake Michigan.

Pied-billed Grebe. (Hell-diver)

A common migrant over the entire state. It occasionally nests in swampy situations along the Mississippi and Illinois rivers and along Lake Michigan.

Loons.

Great Northern Diver.

Spring and fall migrant over the state. Nests occasionally in the northern part of the state.

Black-throated Loon.

An Arctic bird which rarely visits Illinois.

Red-throated Loon.

A rare winter resident in northern Illinois.

Jaegers and Skuas.

Pomarine Jaeger.

A northern variety which occasionally visits Lake Michigan.

Long-tailed Jaeger.

One seen September 21, 1915, Dune Park, Indiana. One found dead at Cairo, Illinois, on the Mississippi River in November, 1876.

Gulls and Terns.

Kittiwake Gull.

A northern gull that visits Lake Michigan occasionally in the winter.

Glaucous Gull.

Rare winter visitor to Lake Michigan from the Arctic.

Iceland Gull.

Occasionally it gets as far south as the Great Lakes during the winter time.

Great Black-backed Gull.

Seen along the coasts of North America occasionally wandering south to the Great Lakes.

Herring Gull.

One of the commonest of our winter residents. Active in eating fish killed by the winters's severity.

Ring-billed Gull.

A fairly common winter migrant along Lake Michigan, occasionally seen in the central part of the state.

Laughing Gull.

Essentially a coast bird. According to Professor Cooke a few pass up the Mississippi during the summer as far as Southern Illinois.

Franklin's Gull.

A western plain gull, seen rarely along the Mississippi river.

Bonaparte's Gull.

An unusual little winter migrant in the central and southern part of the state. Common migrant along Lake Michigan.

Sabine's Gull.

An Arctic gull, a very rare migrant to Lake Michigan.

Gull-billed Tern.**Caspian Tern.**

Irregular in its distribution. At times it appears in some numbers along Lake Michigan.

Royal Tern.

A very rare visitor from the south and east. A doubtful species in Illinois.

Forster's Tern.

Rather a common bird in certain sections of northern Illinois. Seen rarely along the Mississippi River. Has been found nesting in northern part of the state.

Common Tern.

A common migrant in the northern part of the state.

Least Tern.

Seen occasionally in late summer along the Mississippi River.

Black Tern.

Common in north. Seen as a migrant in April and late July along the Mississippi. Nests in north part of the state in abundance.

Anhingas.

Snake Bird.

Found in swamp locations of southern Illinois. Its nests have been taken there.

Cormorants.

Double-crested Cormorant.

Found in the south and central part of state. Nests at Havana on the Illinois, and above Quincy on the Mississippi.

Florida Cormorant.

A summer resident in the southern part of the state, nests having been taken there.

Mexican Cormorant.

Specimens have been taken at Cairo.

Pelican.

American White.

A regular spring and fall migrant which nests far north of us and winters south of the state.

Brown Pelican.

But one record, made at Warsaw, Illinois.

Ducks, Geese, Etc.

American Merganser.

Common winter duck in the north, seen irregularly over the rest of the state.

Red-breasted Merganser.

A winter resident, particularly numerous in the north along Lake Michigan, where it occasionally nests.

Hooded Merganser.

Nests over the state in wooded swamps.

Mallard.

Probably confined as a breeder to Northern half of State. Regular and common migrant often wintering in the central and southern parts of the state where the water is open.

Black Duck.

Seen as an occasional spring and fall migrant in central Illinois becoming more common in the North, where it sometimes nests.

Gadwall.

An occasional migrant through the state. Increasing recently.

European Widgeon.

A rare stray.

Baldpate.

A possible breeder in northern Illinois. Regular, though uncommon migrant in spring and fall along the Illinois, less common than formerly along Lake Michigan.

Green-winged Teal.

A common migrant over the state which occasionally winters in the south part of the state. Nests in north part of the state.

Blue-winged Teal.

Regular migrant over the entire state. Nests irregularly over entire state.

Cinnamon Teal.

An irregular migrant from the West.

Shoveller.

Nested formerly in northern Illinois and may do so now. Common migrant spring and fall along the Mississippi, less common along the Illinois River.

Pintail.

Common spring and fall migrant over the state. Nests sparingly in the northern part of state.

Wood Duck.

Nests in cavities in old willow trees. Once a common nesting bird over the entire state. Now less numerous due to summer shooting and the cutting down of available nesting sites.

Redhead.

Very rare fall migrant along the Mississippi and Illinois Rivers, fairly common but erratic migrant on Lake Michigan.

Canvas-back Duck.

A common spring migrant particularly along the Illinois river. Much less common on the Mississippi river. Seldom seen in the fall. Not a common bird along Lake Michigan.

Greater Scaup Duck.

Rather uncommon spring and fall migrant along the Mississippi and Illinois Rivers.

Lesser Scaup Duck.

Very common migrant in spring probably nesting in northern Illinois. Not so abundant in the fall as in the spring.

Ring-necked Duck.

Rather an uncommon migrant, very similar to its close relative the Scaups. Nests in the northern part of the state.

American Golden-eye. (whistler).

An occasional migrant along the rivers in the late fall. Very abundant on Lake Michigan.

Barrow's Golden-eye.

A rare winter migrant in the north. (western bird).

Bufflehead.

A common late fall and early spring migrant often to be found among the floating cakes of ice on the Mississippi River. Fairly common along Lake Michigan.

Old Squaw.

A regular winter migrant on Lake Michigan. Very rare in the central state.

Harlequin Duck.

A rare migrant. Larry St. John sport writer of the Chicago Tribune reports several in Lake Michigan recently. It is a lover of swift water.

American Eider.

Regarded as a stray to Illinois.

King Eider.

An unusual winter migrant on Lake Michigan. A rough weather bird.

American Scoter Duck.

Common winter visitor on Lake Michigan.

White-winged Scoter.

An uncommon winter migrant on Lake Michigan.

Surf Scoter.

Abundant fall and winter visitor to Lake Michigan occasionally were in the central state.

Ruddy Duck.

A not uncommon species which has nested in the northern part of the state.

Lesser Snow Goose.

A regular spring and fall migrant along the Mississippi.

Greater Snow Goose.

Not uncommon during migrations.

Blue Goose.

I have seen it once in the fall on a sandbar in the Mississippi with a flock of snow geese. Reported by Prof. Cooke as a spring migrant along the Mississippi.

White-fronted Goose.

Rather common migrant along the Mississippi.

Canada Goose.

Common migrant, many in captivity in central state where they breed readily. Nest in the northern part of state.

Hutchin's Goose.

A regular migrant, though not numerous during the spring and fall along the Mississippi and Illinois Rivers.

Cackling Goose.

Rare Migrant.

Brant.

Migrant, spring and fall.

Swan.

Whistling Swan.

A migrant. Several flocks have been seen at Lima Lake, Illinois since the Federal Migration Bird Law went into effect.

Trumpeter Swan.

No recent records.

Bitterns, Herons and Cranes.

Roseate Spoonbill. (?)

Reported to be an occasional resident of southern swamps about 1850.

A specimen was killed in Adams County on the Mississippi about 1887 by O. C. Poling, and one in Jay County Ind. in 1887.

White Ibis.

Seen by Ridgway in 1878 on the Wabash.

Glossy Ibis.

One killed near St. Louis. A very rare summer resident.

Wood Ibis.

Not uncommon late summer visitor to Southern and Central Illinois.

American Bittern.

Summer resident in swamp and river districts over the entire states. Nests generally over the state.

Least Bittern.

Summer resident over the entire state, nesting generally.

Cory's Least Bittern.

A peculiar color-phase of the Least Bittern-one record.

Great Blue Heron.

Common summer resident over the entire state, nests generally.

American Egret.

Probably not nesting now. Formerly nested, generally in south and central parts of state.

One killed in October 1921 at Quincy, others seen.

Snowy Heron.

Restricted to an occasional stray in the southern part of the state.

Reddish Egret.

Very rare migrant to southern Illinois.

Little Blue Heron.

Late summer resident in Southern Illinois.

Green Heron.

Common summer resident over entire state. It nests generally.

Black-crowned Night Heron.

Over entire state as a migrant, nesting in many parts of the state.

Yellow-crowned Night Heron.

Summer resident in the southern states. Nests in swamp districts. It strays farther north.

Whooping Crane.

Rare.

An occasional pair may be found along the Illinois River.

Sandhill Crane.

Nested formerly, but doubtless not now.

Limpkin.

A bird common in Florida which is reported to have strayed to Illinois.

Rails, Gallinules and Coots.

King Rail.

Common marsh resident over the state during the summer time. Nests generally over the state. Very abundant at Lima Lake.

Virginia Rail.

Summer resident over the entire state.

Commoner to the north where it nests.

Sora Rail.

Common summer resident over entire state, nesting generally from the central part of the state northward.

Yellow Rail.

Found over the entire state.

Less common than other Rails.

Black Rail.

Nests in Northern and Central and possible Southern Illinois.

Purple Gallinule.

Rare in northern state. Recorded occasionally in central state and commoner in the South.

Florida Gallinule.

Common summer resident over the entire state.

Nests in the marshes generally.

American Coot.

Common migrant over the entire state.

Nests from the central portion northward in swampy locations.

Phalaropes.

Red Phalarope.

Rare Migrant from the far north.

Northern Phalarope.

Rare Migrant during May and October.

Wilson's Phalarope.

Summer resident in north, nesting in the Calumet regions and elsewhere.

Seen occasionally in the central states about the swamps.

Avocets and Stilts.

American Avocet.

Rare migrant.

Black-necked Stilt.

Rare migrant.

Snipe, Sandpipers, Etc.

Woodcock.

Once common but now an irregular summer resident over the state. Increasing.

Wilson's Snipe.

Migrant in south and central part of the state. Nests in north part of state. Occasionally winters in Adams County and increases in number towards the south during the winter.

Short-billed Dowitcher.

An Atlantic seacoast bird that has been recorded from Cook Co.

Long-billed Dowitcher.

A rare straggler. Seven seen and one specimen taken at Calumet, May 14, 1920.

Stilt Sandpiper.

A spring and autumn migrant which passes through very rapidly.

Knot.

Occurs sparingly along the Lake Michigan territory.

Purple Sandpiper.

An Atlantic Ocean variety which has been known to stray to Illinois along Lake Michigan. A rarity.

Pectoral Sandpiper.

A migrant over the state and although some are found as summer residents, they are not known to nest.

White-rumped Sandpiper.

Reported by Chapman as an abundant migrant along the Mississippi. One flock was seen by the writer in 1918.

Baird's Sandpiper.

Uncommon migrant along Lake Michigan during May and September.

Least Sandpiper.

May have nested very rarely in former years. A common migrant.

Red-backed Sandpiper.

Not a common migrant in south or central Illinois but occasionally plentiful in Cook County along the lake.

Semipalmated Sandpiper.

Occasional summer resident, but do not nest. A migrant which is more common in fall than in the spring.

Western Sandpiper.

Common during migrations.

Sanderling.

I have never recorded it down state, but it is reported as a regular migrant along the Lake in Cook County, particularly during August, September and October.

Marbled Godwit.

A migrant wherever there are wet prairies and fresh water marshes. Not very numerous.

Hudsonian Godwit.

A spring and fall migrant over entire state.

Greater Yellow-legs.

Occasional Summer Resident, and may breed in Northern Illinois. Common migrant.

Lesser Yellow-legs.

A common migrant which breeds very rarely in northern Illinois.

Solitary Sandpiper.

Common migrant and casual summer resident but has never been found breeding.

Willet.

Reported by Nelson as a rare summer resident in the marshes and wet prairies of northwestern Illinois. (Probably the western willet).

Western Willet.

Authority—W. W. Coole.

Rare.

Found in the north state.

Bartramian Sandpiper.

Summer resident over the state in the prairie districts, where it nests.

Buff-breasted Sandpiper.

Rare migrant.

Reported occasionally along the Mississippi River as fall migrant. One reported from the Chicago district in 1916.

Spotted Sandpiper.

Common summer resident over the entire state, nesting generally.

Black-bellied Plover.

A few non-breeding birds are Summer residents in north.

Long-billed Curlew.

Authority of Nelson who once found it nesting in Northeastern Illinois.

Hudsonian Curlew.

Seen only as a migrant.

Eskimo Curlew.

Spring and fall migrant.

*Plovers.***Black-bellied Plover.**

Arrives in Cook County in May.

A few remain but most go north returning in September and remain until October.

American Golden Plover.

Occasional in spring and common migrant in the north during the fall.

Killdeer.

Common over the entire state as summer resident.

Seen in the upland fields as well as in lowland marshes.

Nests generally.

Semipalmated Plover.

A common migrant over state.

A few remain as Summer Residents in the north and may breed there.

Belted Piping Plover.

Uncommon Summer Resident along Lake Michigan where it still nests.

*Turnstones, Oyster-Catchers.***Turnstone.**

Rarely seen in May, more generally seen as a migrant along Lake Michigan during August.

*Bob-White, Grouse, Etc.***Bob-white.**

Distributed as a permanent resident over the entire state.

Scattered in north but numerous in central and south part of state.

Ruffed Grouse.

Nests in North and Central part of state (eastern) and possibly of rare occurrence in Southern Illinois.

Willow Ptarmigan.

A very doubtful species. Has been taken in Wisconsin.

Prairie-Hen.

Found over the entire state. Becoming very uncommon in Central Western part of state.

Prairie Sharp-tailed Grouse.

Nested formerly in North Eastern Illinois. Once at Waukegan. A northern bird.

Wild Turkey.

A few are supposed to be in the heavy river bottom woods of Southern Illinois.

*Dove.***Passenger Pigeon.**

(Once nested sparingly in North Eastern Illinois, and in abundance in the southern woods. Now extinct.)

Mourning Dove.

Summer resident which nests over the entire state. It spends the winter in scattered flocks in the Southern part of the state and southward.

*Vultures.***Turkey Vulture.**

Abundant in south and fairly common in center state. Rare summer resident in Northern Illinois. Nests on the ground in hollow trees from central state southward.

Black Vulture.

A few are seen in the southern part of the state.

*Hawks and Eagles.***Swallow-tailed Kite.**

Rare even in southern Illinois. Half a century ago it was a common resident, nesting throughout the southern half of the state.

White-tailed Kite.

Rare. One reported from Rantoul by George Ekblaw during the winter of 1916.

Mississippi Kite.

If any are now to be seen in the state, it will be in the south. Once common throughout the state.

Marsh Hawk.

In Northern and Central Eastern part of state said to be uncommon if not rare. Along the Mississippi marshes in Central to the south it is a permanent resident in goodly numbers.

Sharp-shinned Hawk.

Found over entire state. Nests in the north counties much more than in the south, although it nests generally.

Cooper's Hawk.

Common over the entire state. Similar in distribution to the above.

Goshawk.

Rare winter migrant. Migrates into the states occasionally, as does the Snowy Owl. Both are forced south from the sub-arctic regions when a periodic scourge kills off the varying hares upon which they normally live. Very common along the Illinois River in winter of 1918.

Western Goshawk.

A rare stray in southern Illinois.

Red-tailed Hawk.

Common resident over the entire state, nesting throughout.

Krider's Red-tailed Hawk.

A very rare stray.

Western Red-tailed Hawk.

A casual migrant.

Harlan's Hawk.

A casual migrant.

Mexican Gosgawk.

Rare stray to our southern border.

Red-shouldered Hawk.

Common over the entire state, nesting generally.

Swainson's Hawk.

Very rare migrant from the west and north.

Broad-winged Hawk.

Native over the entire state, nesting throughout.

American Rough-legged Hawk.

Rather rare spring and fall migrant.

Ferruginous Rough-legged Hawk.

A western bird which occasionally strays into Illinois.

Golden Eagle.

Formerly nested in different parts of state.

Rarely seen except as a winter migrant.

Bald Eagle.

Now rare winter migrant.

A few are killed each year.

Even in Alaska where they were formerly able to hold their own, a bounty is now paid for killing them.

Prairie Falcon.

A mere straggler from the West.

Richardson's Pigeon Hawk.**Duck Hawk.**

Found in southern Illinois where it sometimes nests in the tall sycamore trees.

Pigeon Hawk.

Rare summer resident and may nest in the north.

American Sparrow Hawk.

Winters irregularly over the state.

A very common summer resident nesting generally over the state, in holes in dead trees, in barns and church gables.

American Osprey.

Rather rare summer resident wherever there are large bodies of water. Rare visitor over the Mississippi River.

*Owls.***Barn Owl.**

Not uncommon permanent resident in central and southern Illinois. Some nest in holes in the clay banks along the Mississippi near Quincy. Generally found in barns and church steeples.

American Long-eared Owl.

To be found over the entire state. Nests generally.

Short-eared Owl.

Possibly confined as a breeder to Northern Illinois. A common winter and spring bird in the Mississippi River lowland swamp situations. General over the state in such situations.

Barred Owl.

Permanent resident in the dense woods over the entire state, nesting generally.

Great Gray Owl.

A very rare northern owl having been taken in Cook County.

Richardson's Owl.

Very rare northern owl that may reach northern Illinois occasionally.

Saw-whet Owl.

No breeding records for Illinois but a summer resident in N. W. Indiana (Lake Co.) Found a dead specimen March 15, 1914 at Quincy.

Screech Owl.

Common permanent resident over entire state. It nests throughout.

Great Horned Owl.

Permanent resident over the state, nests generally.

Arctic Horned Owl.

Strays into Illinois from the north during its winter travels.

Snowy Owl.

A periodical winter migrant from the far north.

American Hawk Owl.

This day flying owl seldom gets south of the Canadian boundary. One captured in Kane County in 1869.

*Paroquets.***Louisiana (Carolina) Paroquet.**

Once common in the southern Illinois woods.

The few living specimens are now isolated to the swamps of Florida.

*Cuckoos and Kingfishers.***Yellow-billed Cuckoo.**

A common summer resident over the entire state. More abundant in south, nests generally.

Black-billed Cuckoo.

Summer resident over entire state. Rather uncommon in south but abundant in the north.

Belted Kingfisher.

A summer resident over the entire state with an occasional stray as a winter resident where ever the water remains open. Nests wherever a bank borders water.

*Woodpeckers.***Ivory-billed Woodpecker.**

Probably extinct in Illinois.

Hairy Woodpecker.

Permanent resident over the entire state, nests generally.

Southern Hairy Woodpeckers.

Probably replaces former in extreme southern Illinois.

Downy Woodpecker.

Permanent over the state, nesting in all sections of the state.

Arctic Three-toed Woodpecker.

Unusual winter migrant to northern Illinois. A number recorded during the winter of 1919.

Yellow-bellied Sapsucker.

Migrant in south and central state. Nests in the north part. It winters in the south part of the state in small numbers.

Northern Pileated Woodpecker.

Resident over entire state. Rare in central and northern Illinois. Several recorded annually from river islands above Quincy.

Red-headed Woodpecker.

In the south part of the state many winter, a few even winter in the central state. Summer resident in quantities throughout the state, nesting generally.

Red-bellied Woodpecker.

Permanent over the entire state but rare in Northern Illinois. Nests throughout the state.

Flicker.

Permanent resident in the south part of the state.

Northern Flicker.

More or less permanent over the entire state, migrates heavily in spring and fall. Probably replaced by Flicker in extreme Southern Illinois.

Whippoorwill, Swift, and Humming Bird.

Chuck-will's-widow.

Casual summer resident in Southern Illinois and probably nests.

Whippoorwill.

Summer resident over the entire state, nesting generally.

Nighthawk.

A common summer resident over the entire state. Probably replaced largely in northern Illinois by Sennett's Nighthawk. Nests commonly on top of tall buildings where the flat roofs are covered with gravel.

Sennett's Nighthawk.

Summer resident in the northern part of the state.

Chimney Swift.

A summer resident over the entire state. Originally built in hollow trees. An increasing variety.

Ruby-throated Hummingbird.

Common summer resident over the whole state, nesting generally.

Flycatchers.**Kingbird.**

Common summer resident over the entire state. Increasing in numbers.

Creasted Flycatcher.

Common summer resident over state. Nests in old woodpecker's holes and hollow limbs.

Phoebe.

Common summer resident over entire state. Nests under bridges, culverts, along cliffs and occasionally under eaves.

Say's Pheobe Flycatcher.

A stray from the west. Very few records.

Olive-sided Flycatcher.

Uncommon migrant about Chicago. Not abundant downstate. Passes on to the north to breed.

Wood Pewee.

Common over entire state as a summer resident. It nests generally.

Yellow-bellied Flycatcher.

A spring and fall migrant throughout the state.

Acadian Flycatcher.

A common migrant and summer resident over the entire state, preferring the damp woods.

Traill's Flycatcher.

Summer resident in northern, central, and probable in southern Illinois.

Alder Flycatcher.

Not a common migrant.

Lest Flycatcher.

A migrant over the whole state. A summer resident in the northern counties.

Larks.

Horned Lark.

A rather rare winter migrant in the northern state.

Prairie Horned Lark.

Permanent resident over the entire state, which is both increasing in numbers and extending its range.

Crows and Jays.

American Magpie.

Reported once in records of Robert Kennicott as a rare winter visitant in northern Illinois. During the winter of 1921, Magpies were reported from Fargo, N. D.; Black Hills, S. D.; Sutherland, Iowa; River Falls, Wisconsin, so they may readily be expected again from Illinois.

Blue Jay.

Common permanent resident over the entire state.

Northern Raven.

Very rare. Seen only as a winter migrant, generally in the northern part of state. Common throughout the state fifty years ago.

Crow.

Very common, permanent resident over entire state. In winter thousands congregate in certain localities in crow roosts. Quincy, Adams Co., has been the site of one such crow roost until 1922. Few birds have returned to the local roosts since that date.

Clarke's Nutcracker.

A western bird often reported from Kansas, Missouri, and Arkansas which is reported as having strayed to Illinois.

Starling.

A European bird brought to America in 1890, appeared in Cleveland, Ohio in 1921 and in Champaign February, 1922, which is the first appearance in Illinois and the most westwardly record at the time of writing.

*Blackbirds, Orioles, Etc.***Bobolink.**

An irregular migrant through central and western Illinois. Summer resident in the northern part of the state where they nest abundantly. Occasionally nest almost to the central part of the state.

Cowbird.

A common spring, summer and fall resident over the entire state, wintering in the southern part of the state along with flocks of Grackles and Redwings.

Yellow-headed Blackbird.

It nests in the northern Illinois swamps. Migration course is not through Illinois but probably to the westward. Seldom seen in the central or southern part of state.

Red-winged Blackbird.

Summer resident over the entire state. Tremendous flocks of females occasionally winter about Quincy.

Arctic Red-winged Blackbird.

Authority of Oberholser.

Meadowlark.

Summer resident over entire state, but the variety is questionable in the Northwest and Southern Illinois situations.

Southern Meadow Lark.

Breeding status not fully determined, probably restricted to central and southern part of the state.

Western Meadow Lark.

Occasional migrant in Adams Co. Commoner northward. A western variety with district song variation.

Orchard Oriole.

Summer resident over the entire state, nests throughout. Numerous in South, and rather uncommon in the north.

Baltimore Oriole.

Summer resident over the entire state, nests throughout.

Rusty Blackbird.

Occasional winter resident in southern part of state. Spring migrant in swampy situations. No nesting records in state.

Brewer's Blackbird.

A mere stray from the West.

Bronzed Grackle.

Common over entire state. Winters in the south part of state, stray birds occasionally winter in the north. Nest over entire state.

Finches, Sparrows, Etc.

Evening Grosbeck.

Irregular migrant as far south as the central part of state.

Pine Grosbeak.

Rare winter migrant in the north part of state.

Purple Finch.

An occasional winter resident in the south and central part of state. Spring migrant in tremendous quantities in central and western part of the state. Nests sparingly in the northern part of the state.

House Sparrow.

Constitute a pest over the entire state.

American Crossbill.

Very irregular winter migrant over state. More common in north than south. To be expected near big pine groves.

White-winged Crossbill.

Irregular winter migrant. Breeds far north.

Hoary Redpoll.

Rare winter migrant in the northern counties of the state.

Redpoll.

Common winter migrant in the northern part of the state. But one record in Adams Co. Seldom seen in the central state. Breeds far north.

Holboell's Redpoll (?)**Greater Redpoll.**

A rare winter migrant in northern Illinois.

American Goldfinch.

Some members of this species are always with us, nesting, generally, throughout the state during July. A very large migratory movement is noticeable each spring during the middle of April.

Pine Siskin.

A winter migrant to northern Illinois. Occasionally seen in the central state as far as Champaign and Adams counties.

Snow Bunting.

A winter migrant in the northern counties. One stray was killed in Adams Co. many years ago. Nests in the Arctic regions.

Lapland Longspur.

A winter migrant which often travels well down past the center of the state.

Smith's Longspur.

A winter migrant over the entire state. Not common, however very irregular in appearance.

Chestnut-collared Longspur.

A native of the Great Plains which has been reported as a winter straggler in Illinois.

McCown's Longspur.

A western bird which occasionally straggles into Illinois during its winter wanderings.

Vesper Sparrow.

Common summer resident over the entire state in grassy situations. Nests generally.

Savannah Sparrow.

Migrates over entire state. More common in the Eastern part of the state than Western. Found nesting by Ridgeway at Mount Carmel, also found it wintering there several times in mild seasons.

Grasshopper Sparrow.

A summer resident throughout the state. A prairie bird. Nests generally.

Henslow's Sparrow.

Summer resident locally over the entire state in prairie situations. Nests generally though not abundantly.

Leconte's Sparrow.

Recorded breeding in northeastern Illinois but record questioned. A rare migrant along western Illinois at Quincy and Warsaw.

Nelson's Sharp-tailed Sparrow.

A possible breeder in Northern Illinois. A migrant to be found in the long grass of the prairies.

Lark Sparrow.

A summer resident over the entire state where prairie situations exist. Nests generally.

Harris' Sparrow.

Irregular migrant seen every several springs at Quincy reported elsewhere about the northern part of the state at rare intervals. October 31, 1921 a large wave of Harris' Sparrows was reported at Kansas City, Mo. It is extending its range eastward.

White-crowned Sparrow.

A common migrant over the state, winters in southern Illinois, nests in Canada. No nesting record.

White-throated Sparrow.

Very common migrant. Winters as far north as the central part of the state. No nesting record.

Tree Sparrow.

A common winter resident over the entire state which leaves for the northward in early March.

Chipping Sparrow.

A common summer resident over the entire state. Nests generally.

Clay-colored Sparrow.

Classified as summer resident in Northern Illinois. A western variety which is very rare.

Field Sparrow.

Common summer resident over the entire state in rural fields where buckbrush, spice bush and other low growing shrubbery exists. Nests generally, being a very common host to the cow bird.

Slate-colored Junco.

Common winter resident over entire state. Leaves for the north during March.

Montana Junco.

Rare winter straggler seen occasionally in the more northern countries. Several records in Champaign and one in Adams Co.

Shufeldt's Junco.

Bachman's Sparrow.

Summer resident throughout the state, but chiefly in southern Illinois. Extending this range northward. Nests sparingly over entire state.

Song Sparrow.

Permanent resident over the central part of the state. Rather rare summer resident in southern and central Illinois. Breeds in the northern part of state.

Lincoln's Sparrow.

Winters in south, migrant in central state, and summer resident in north where it sometimes nests.

Swamp Sparrow.

Winters in southern Illinois and a few remain in the swamps of the central part of the state. It is a general migrant over state and nests in northern part of the state, although an occasional nest is found farther south.

Fox Sparrow.

A general spring and fall migrant. A winter resident in the southern part of state. No nesting records.

Towhee.

Often winters as far north as Quincy. An early migrant nesting generally over the entire state.

Arctic Towhee.

Cardinal.

Permanent resident over the entire state. Rather rare in the northern state, very common winter and summer at Quincy and southward, often having seen eight or ten in one weed patch. Less abundant in the eastern part of the state.

Rose-breasted Grosbeak.

Only a migrant in the southern part of the state. Nests from the central part of the state through the northern counties.

Blue Grosbeak.

A very rare summer migrant from the South which visits our southern most counties. Never reported in Adams or Champaign county.

Indigo Bunting.

Summer resident over the entire state. Nests generally.

Painted Bunting.

One female seen by Ridgway, June 10, 1871.

Dickcissel.

Common summer resident over the entire state. Nests generally.

Tanagers.

Scarlet Tanager.

Rather rare summer resident in the southern part of the state increasing in numbers in the central state and regular summer resident farther north. Generally observed in high trees.

Summer Tanager.

A common summer resident in southern Illinois a mere migrant or stray in Adams Co. and a very rare summer resident north of the central part of the state.

Swallows.

Purple Martin.

Summer resident over entire state. Nests in boxes and the cornices of buildings.

Cliff Swallow.

Summer resident over entire state. Local in nature. Scarce in Adams Co., except as a migrant. Very numerous in some sections. Builds its gourd shaped mud houses along on the eaves of barns and along cliffs.

Barn Swallow.

A general summer resident nesting under the eaves of the barns, sometimes inside on the rafters and occasionally on cliffs.

Tree Swallow.

Common summer resident over the entire state. Nests in isolated dead trees, particularly dead trees riddled with woodpecker holes situated in swamps or sloughs. Less common in the north part of state.

Bank Swallow.

Summer resident. Everywhere about state where clay-banks and water are in proximity. Flocks of hundreds will honeycomb a large clay bank, giving it a very unique appearance.

Rough-winged Swallow.

General summer resident. Nesting habits similar to those of the Bank Swallow.

Northern Violet-green Swallow (?)*Waxwings.***Bohemian Waxwing.**

Very irregular winter migrant. Common in central part of the state in 1920. Feed on juniper berries, persimmons, rosebrier fruit, etc.

Cedar Waxwing.

Seen as a migrant over the entire state throughout the winter and spring. Nests irregularly from the central part of the state northward.

*Shrikes.***Northern Shrike.**

A rare winter resident in the northern part of the state. But one record in Adams County. It lives in the far northland.

Loggerhead Shrike.

The prevalent shrike in the southern part of the state.

Migrant Shrike.

Possibly confined as a summer resident to the northern half of state. Nests in the Osage orange trees at the hedge corners. Becoming scarce in many parts of the state because of the cutting away of the hedge fences. It will be interesting to note its future selection of nesting sites.

*Vireos.***Red-eyed Vireo.**

Common summer resident throughout the woodlands of the state. Nests generally.

Philadelphia Vireo.

Regular, although uncommon migrant throughout the state.

Possibly a summer resident in northern Illinois.

Warbling Vireo.

Summer resident throughout state. Nests generally. Less abundant in the north, although reported to be increasing in numbers particularly in Knox Co.

Yellow-throated Vireo.

Summer resident throughout the state, living in the bottom land forests. Nests sparingly over the entire state.

Blue-headed Vireo.

Rather uncommon spring and fall migrant. No nesting records.

White-eyed Vireo.

Nests irregularly over entire state. Not a common summer resident in the north.

Bell's Vireo.

Irregular summer resident over state, although rare in Northern Illinois. Nests found yearly in low brush and tangled briars in Adams Co. Also found in similar locations over the rest of state, particularly southward. Abundant in certain parts of Knox County.

*Wood Warblers.***Black and White Warbler.**

A spring and fall migrant throughout Illinois. An upland wood bird. Nests beyond the state. It may nest occasionally in the north part of this state.

Prothonotary Warbler.

Summer resident over entire state. Nests very abundantly in holes in willow trees about the rivers and swamps in southern and central part of state. Very common about Quincy.

Swainson's Warbler.

Rare summer resident; in swamps of southern Illinois only.

Worm-eating Warbler.

Common species in southern Illinois, but a rare summer resident in the northern part of the state. Nests accordingly over the state.

Blue-winged Warbler.

A migrant which occasionally summers over entire state. It nests sparingly throughout the state.

Golden-winged Warbler.

Migrant in southern Illinois, summer resident from central state northward. Nests from central state northward. Increases in number towards the northern part of the state.

Nashville Warbler.

Ridgway states that it breeds in northern Illinois. Common migrant throughout state in open woods.

Orange-crowned Warbler.

Have found it a very rare migrant in western Illinois and generally reported over the state as very irregular.

Tennessee Warbler.

A common spring and fall migrant. Nests north of our state.

Parula Warbler.

Common migrant. Seen in wooded swamps during the summer. Nests sparingly through the state.

Cape May Warbler.

Regular migrant in the western part of the state. Increasing in numbers in northern Illinois. Hard to identify as they move in the tree tops chiefly.

Yellow Warbler.

Very common migrant, nesting very generally over the central and northern portion of the state and occasionally in the south.

Black-throated Blue Warbler.

A common migrant over the state.

Myrtle Warbler.

Very early and common migrant. Often returns in fall and remains for days in great numbers. Seen both on the lawns and in the trees. A winter resident in the southern part of the state. Nests far north of Illinois.

Magnolia Warbler.

A very common migrant over the state. Nests far north.

Cerulean Warbler.

A rare migrant in the western and eastern and northern parts of the state. A dweller of the tall tree tops. Nests rarely throughout the entire state.

Chestnut-sided Warbler.

A common and pretty warbler which may be expected to nest in northern Illinois. Common migrant over the entire state.

Bay-breasted Warbler.

A migrant in fall and spring seen in the tall tree tops. Nests in the pine trees far north of Illinois.

Black-poll Warbler.

A common migrant over the entire state. No nesting record.

Blackburnian Warbler.

A beautiful spring and fall migrant over the entire state. It may nest rarely in the northern part of our state but although seen as a summer resident, no nests have been found as yet.

Sycamore Warblers.

Apparently confined as summer resident to southern Illinois.

Likes a swamp location where it may be discovered at the tops of the tall sycamore and elms.

Black-throated Green Warbler.

A regular migrant. Nests in the pine forests far north of this state. Reported by Nelson as having found nest in northern Illinois.

Kirtland's Warbler.

A very rare warbler seen enroute to Hudson Bay region, where it nests.

Pine Warbler.

A very common migrant throughout the entire state. Nesting many places over the state.

Palm Warbler.

A very abundant spring migrant. Commonly seen on the ground or on the low willows. Breeds beyond the north border of state.

Prairie Warbler.

A rare migrant over the entire state; less common in the west and considered very uncommon in northern Illinois. Nests have been found over the entire state, rarely in the north, much more common in the south.

Oven-bird.

Common migrant over the entire state. Nests occasionally in swamp situations in the northern part of this state although its nest is sometimes found in the central part of the state.

Water-Thrush.

A migrant along creeks and swamp situations, wintering occasionally in the southern part of the state. Nests far beyond our state.

Grinnell's Water-Thrush.

A common migrant over the state. A possible summer resident in northern Illinois.

Louisiana Water Thrush.

Over entire state, principally the southern, central and eastern part of the state. Nesting generally. Rather a rare summer resident in the north.

Kentucky Warbler.

Seen as an uncommon migrant over entire state. Rare in north, commoner in south where it nests in the rich moist woods. Nests are far north as Adams County.

Connecticut Warbler.

An abundant spring migrant, seldom seen in the fall. To be found in swamps in button brush and willow trees. Breeds far to the north of Illinois.

Mourning Warbler.

Spring migrant seen in low bushes and along rail fences, etc.

Uncommon fall migrant. No nesting records.

Maryland Yellow-throat.

Common summer resident over the entire state. Nesting generally throughout. Birds commonly seen in brush and brier patches.

Yellow-breasted Chat.

Common summer resident over most of the state, becoming rarer toward the north. It nests in the wildest and thickest patches of bramble in the central and southern part of the state.

Hooded Warblers.

A summer resident in Southern and Central Illinois, nesting in the damp woods. Rare in the northern part of the state.

Wilson's Warbler.

A regular migrant throughout the state. Nests far north of Illinois.

Canadian Warbler.

A regular migrant throughout the state. Nests north of Illinois.

American Redstart.

A common summer resident over the whole state. Nests throughout the central and northern part of state. Found in the thick woodland.

*Wagtails and Pipits.***American Pipit.**

Common migrant in spring and fall in the western and northern counties. Very irregular in central and southern portions.

*Wrens, Thrashers, Etc.***Mocking Bird.**

Rare summer resident in northern Illinois. Seen irregularly in central Illinois during summer. In 1922 one spent the winter at Quincy and one was reported from Champaign during the winter. Abundant in the extreme southern portion of state in suitable locations, nesting there regularly. Has been found breeding as far north as Knox County.

Catbird.

Common summer resident throughout the state, nesting generally.

Brown Thrasher.

A very common summer resident. Nests in hedge rows, and dense bushes over entire state.

Carolina Wren.

Rare in the north. Uncommon throughout the central part of the state except in rough situations where it is sometimes numerous. Common in Adams County. Common in the southern portion. A wren of the woods and rocks. Increasing in numbers.

Bewick's Wren.

Rare in northern and western parts of state. Common in Eastern and Southern portions. It is enlarging its boundaries. Increasing in Schuyler, Pike and Adams Counties, where he seems to prefer the barns to bird houses. A bird of wonderful song. Nests from central part of state southward.

House Wren.

Found irregularly over the entire state. In some of the southwestern counties, its place is taken by the Bewick's Wren, while perhaps the adjoining county will have it in abundance. Nests generally.

Parkman's Wren.

A western form of the house wren, apparently more common than formerly believed. Common throughout western and northwestern Illinois. Nests generally throughout these locations.

Winter Wren.

A common little fall and spring migrant seen about the brush piles in woods or along creeks. Nests far north of Illinois.

Short-billed Marsh Wren.

Found anywhere in the state where wet meadows or sloughs allow the heavy growth of sedges and tall prairie grass. Summer resident. A very secretive bird. Nests generally, in these locations.

Long-billed Marsh Wren.

Summers throughout the entire state in swamps and marshes which are filled with rank growths of wild rice, cat-tails, and bulrushes. Said to spend mild winters in southern Illinois. Nests generally.

Prairie Long-billed Marsh Wren.

Summer resident in northern Illinois, but breeding status has not been fully determined.

*Creepers.***Brown Creeper.**

A common winter migrant throughout the state. Nests far north of Illinois.

*Nuthatches and Tits.***White-breasted Nuthatch.**

Common permanent resident throughout entire state. Nests early throughout its range.

Red-breasted Nuthatch.

A very irregular migrant in central and south portions. Appears in abundance every ten or twelve years. A few breed in northern Illinois.

Tufted Titmouse.

Uncommon summer resident in northern Illinois. Common permanent resident in central and southern part of state, nesting throughout this range in high knot holes or old woodpeckers' holes.

Chickadee.

Common permanent resident throughout the entire year in northern and central part of state. At the 40th parallel it appears irregularly with the Carolina Chickadee. Nests in holes and low tree cavities.

Carolina Chickadees.

Apparently confined as a permanent resident to southern and central Illinois. Nests throughout this limit.

Hudsonian Chickadee.

A very rare straggler. One taken at Rock Island by Dr. J. W. Velie, years ago. To be watched for along the northern Counties.

*Kinglets and Gnatcatchers.***Golden-crowned Kinglet.**

A winter migrant, more common in the northern state than south. Nests in far north woods.

Ruby-crowned Kinglet.

A spring and fall transient, common at apple blossom time, where it secures innumerable small insects about the flowers. Summers north of us and spends his winters south of us. He has a wonderful little song.

Blue-gray Gnatcatcher.

A migrant over entire state. Numbers of them nest in Schuyler County, Illinois, although in Adams County, 50 miles away it is an irregular, even rare migrant. A rare summer resident in the north part of the state. Nests regularly as far north as Knox Co. becoming abundant in the southern part of the state.

Thrushes, Bluebirds, Etc.

Townsend's Solitaire.

A rare western bird which is a mere straggler in Illinois. Reputed to be one of the world's most wonderful singers. One shot at Waukegan, December 16, 1875.

Wood Thrush.

Irregular summer resident over the entire state. Prefers the heavily shaded woodlands. In the western part of the state it is common in the cities where it nests readily on horizontal limbs of elms and hard maple trees. A wonderful singer with a short metallic song of incomparable sweetness.

Wilson's Thrush.

Seen as a shadowy migrant of the underbrush in southern and central Illinois. A summer resident in the woods in northern Illinois and northward.

Willow Thrush.

The common form in northeastern Illinois, but hard to distinguish from Wilson's Thrush without taking specimens.

Gray-checked Thrush.

Merely a migrant in Illinois, lacking song while traveling.

Bicknell's Thrush.

A rare migrant. Recorded from Warsaw, Illinois.

Alaska Hermit Thrush?**Olive-backed Thrush.**

Migrant throughout state. Often singing slightly at evenings during his northern migration.

Hermit Thrush.

Very general and early migrant in spring. Nests north of state.

Robin.

Common summer resident throughout the state. Nests on window ledges, tree branches, fence poles, fire escapes, and other odd places. Occasionally winters in central and southern part of state. Increasing.

Southern Robin.

Extends its travels through the south part of the state, where it nests.

Bluebird.

Common summer resident over entire state. Migrants arrive in the middle to late February. Nest in boxes when unannoyed by English Sparrow; otherwise, in knot holes and woodpeckers holes in the country.

A careful reading of this list shows that many of these birds are no longer with us, though the wise legislation of the last ten years, promises to restore many of them to our state. First in importance of the restorative measures comes the passage of the Federal Migratory Bird Law and second the passage of state laws establishing game preserves and parks throughout the state. These two factors will tend to rehabilitate the bird life of the state.

FEDERAL MIGRATORY BIRD ACT.

In December 1916, the Migratory Bird Treaty between United States and Great Britain, in reference to birds that migrate between Canada and United States was ratified and became a fact.

The shooting of Migratory birds during the spring or nesting season was forbidden in the United States and Canada, and fall shooting was controlled by open seasons in selected zones. Not only did the law govern the time in which hunting might be enjoyed in any part of the two-countries, but it also forbade the sale of game killed during the open season.

Upon the law's going into effect, the good results were instantaneous. Reports for the first year from game wardens all over the two countries showed the largest number of fall birds seen for many years. Each succeeding year the number of birds and varieties have increased, until this last season I was informed by practically every hunter that I asked, that the hunting was as good as any fall shooting he has ever had.

Many varieties of birds which have not been commonly seen for a great many years are beginning to make their reappearance. This includes the Woodcock, Swans, and many forms of ducks and snipe which were thought to be all but extinct.

The following is an interesting newspaper account of the large number of ducks present along the Illinois River in the spring of 1922, just six years after the signing of the above treaty.

“Wild ducks are to be seen in almost every field located north and northwest of Rushville, the number in some of the fields being estimated at many thousands. To the south, in the Crane Creek and Coal Creek Drainage District, the ducks are said to be more numerous than ever before and countless thousands can be seen in the fields adjacent to the public road between Frederick and the river. Fields seeded to wheat are now their favorite feeding grounds and if this continues, there is a probability that the growing crops may be considerably damaged.”—Rushville (Ill.) Herald, March 9, 1922.

The Illinois State Legislature has re-enacted its game laws to co-ordinate with the Federal law, thus making more effective the protection of the migrants which come through Illinois.

STATE AUDUBON SOCIETY.

One of the greatest factors for good in the protection of birds throughout our state is the Illinois Audubon Society. This organization not only watches all legislation that pertains to birds in the State Legislature, but it yearly publishes two of the finest bulletins on birds that are to be had in the United States. Its educational program has practically done away with the small boys' bird-egg collecting, and the study of bird life and its protection is now a part of the curriculum of nearly every public school.

THE DUCK CLUBS.

Duck shooting has become one of the most universally enjoyed sports of the hunters of Illinois. Those living upon lakes and rivers have an abundance of opportunities in which to exercise their privilege. But many citizens of the interior

wish to enjoy similar sport with the result that along the entire Illinois River, the sloughs and swamps are leased by groups of such men and hunting clubs are formed, some of which are very elaborate in their appointments. Live decoys are kept in large numbers and in many of these locations the wild ducks are fed all winter long, which encourages their permanency as winter residents.

BIRD STUDY AT OUR UNIVERSITY.

The State University has maintained a course in ornithology under the able instructions of Professor Frank Smith and several assistants. The course is covered by lectures, and by laboratory work; and the University Museum is used to supply the mounted specimens needed to illustrate the lectures. Recently a stereopticon machine with hundreds of slides has been installed; so the students not only see perfect birds in mounted form but also see pictures of them in their native habitat.

In 1906-07 and 1909 the state laboratory of Natural History under the instruction of Stephen A. Forbes, the eminent state entomologist, decided to make a statistical survey of all the birds in Illinois. The active work was under the direction of Alfred O. Gross, Ph. D., with an assistant, both of whom were experienced naturalists and taxidermists. They made three trips back and forth across the state; one in the southern portion, one in the central portion, and one in the northern. Their activities are recorded in the form of a bulletin issued by the state, which gives us a complete accounting of the bird life of Illinois during the summer season. So wide has become the interest in bird life that elementary courses in ornithology have been instituted in nearly all of the state normal schools, and some very valuable information concerning nesting and incubation has been secured for science by the teachers and classes at the Western Illinois State Normal at Macomb.

No history of our state birds would be complete without an appreciation of Robert Ridgway, Curator of the Division of Birds, United States National Museum, who is a native Illinoisan with his home at Olney, Illinois. He is our master ornithologist and scientist who has written more than 500 monographs on birds and many histories, one being a two

volume Edition, "Ornithology of Illinois" which was published by the state and is the most complete and authoritative work on Illinois birds in existence. His greatest success is a 10 volume work, "The Birds of North and Middle America," which is one of the most prodigious piece of scientific work ever attempted. It will stand as a monument to him and his name will ever be an honor to Illinois.

SUMMARY.

After reading the data gathered here, one sees at a glance that Illinois has changed radically during the past century in the nature of its flora, with a corresponding change in the life and character of its birds. With the drainage of the swamps comes the destruction of numerous habitats so necessary to the life of many varieties of our birds.

The increase in number of death-dealing contrivances such as electric wires, light-towers, pump guns, etc., have rapidly depleted the bird population.

When we study the situation from an economic standpoint, we immediately recognize that the troubles of the farmers are increasing due to the multiplication of insect pests which can be controlled only by birds and the use of the spray. Unless the people appreciate the situation before it is too late, one of the most valuable helping forces of the farmer is apt to be depleted beyond a point where it is possible to replace it. The passage of the Federal Migratory Bird Act was one step in the right direction. The Federal Government has started the enactment of laws establishing tremendous forest reserves, and bird sanctuaries.

Illinois as a state should not be far behind. There are a few wonderful situations in the state that should be purchased at once. All drainage activity at such points should be stopped and the birds should be given these vast expanses of waste land for their home sites. One of the most valuable of these locations is the incomparable Lime Lake district lying some twenty miles south and east of Warsaw, Illinois. A second reserve in the north-western part of the state should be established along the Mississippi river, probably across from McGregor, Iowa. Several such situations should like-

wise be established on the Illinois river. Furthermore, one of the several cypress swamps in the southwestern part of the state, should be purchased so that birds traveling up the Wabash would have a sanctuary.

These bird reserves should be large enough to allow a number of different associations so that not only the swamp-loving birds, but the upland birds could find a refuge. Unless this action is taken very soon, Illinois, will find the lands, which now may be purchased at a very trifling amount and which at present have their natural forests upon them in undrained condition, beyond the power of purchase.

PRIVATE GAME PRESERVES AND SANCTUARIES.

At the present time, there are more than twenty-two privately owned plots of land in the state, partly patrolled or under the care of the state. The largest of these is the 5,000-acre farm of ex-Governor Frank O. Lowden. Add to these, hundreds of acres of land and swamp in the proposed-state park program, together with a few large sanctuaries located in the various swamps of the state, and we shall soon be giving the birds a chance at propagation which they have not enjoyed for a half century. If the educational influence of the Audubon Societies is effective and the hunters can be taught to glory in the wild life about their preserves and refrain from shooting everything that flies, from ducks, gulls, and herons down to the tinp snipe and grass-hiding sparrow, then we shall begin to see more of the birds which made our swamps, rivers, and forests resplendent with beauty and happy with song a century ago.

We have seen how great has been the change in our birds during the first one hundred years of the life of our state. It is a dangerous experiment to disarrange the balance of power in nature and if the state does not give immediate legislative protection to the birds in the form of numerous preserves and strict laws, I fear the next one hundred years will show a decimation of our bird allies with an increase in the hordes of rats, mice, grasshoppers, and other insect pests, causing disaster to the farmers' crops, to our native tree, in fact to the entire flora of the state.